

**NAVAL POSTGRADUATE SCHOOL**  
Monterey, California



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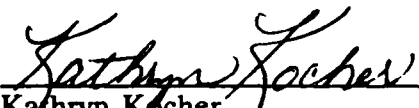
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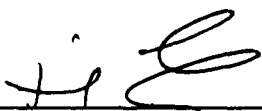
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THE RESERVE INTENTIONS  
OF ACTIVE DUTY ARMY NURSES



by

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## EXECUTIVE SUMMARY

There have been many instances in the last 40 years when civilian hospitals and the military services have been unable to attract the numbers of registered nurses considered necessary for the provision of a high level of health care. A shortage of nursing staff can result in inadequate or prolonged medical care for service members and detract from the paramount goal of personnel readiness. Predictions from the 1988 Department of Health and Human Services, Secretary's Commission on Nursing indicate that recruiting and retaining both Active Duty and Reserve nurses may become even more serious problems in the next decade.

The purpose of this report is to investigate the Reserve intentions of nurses serving on Active Duty. A summary of the literature dealing with the labor market for nurses, employee retention models, and second job holding provides essential background. Empirical studies based on data for both military and civilian nurses are also reviewed. Bivariate and multivariate analyses were undertaken to identify the determinants of anticipated Reserve service for current Active duty nurses.

Data from the 1985 DoD Survey of Officers and Enlisted Personnel were used to identify the factors influencing the Reserve plans of Active duty Army nurses. The survey was designed to aid in examining enlistment and retention decisions, career orientation, and policies affecting military members and their families. It provides a unique opportunity to investigate the attitudes of nurses toward specific characteristics of their jobs and toward various aspects of military life as well as the role of the Army in their career plans.

There were 334 Army nurses included in the survey who were appropriate to this study. These respondents were divided into three tenure groups: those with

less than five years of service; those with five through 10 years of service; and those with 11 through 19 years served. These length of service groupings reflect typical decision points in an Army officer's career. The shortest length of service group was comprised of those who were completing an initial obligation. The group with five through 10 years of service had usually made a second commitment to serve and were approaching a decision about making a 20 year career in the military while the officers with 11 through 19 years of service were more likely already to have chosen the career path. Profiles were constructed for each of the three tenure groups while multivariate analyses were undertaken only for nurses with less than 11 years of service.

#### Nurse Profiles

Nurses with less than five years of experience showed the strongest intention to serve in the Reserves (67 percent). The typical nurse in this tenure group was female, 30 years old, and had entered Active Duty service at 28 with a bachelor's degree (which was still her highest degree). Her rank was 03 and she had one to two years of obligated service remaining. She was white, unmarried, and without dependents. Her total family income for 1984 was about \$29,500. Among the facets of her working environment she found commissary services and personal freedom the least satisfactory and rated the chance to serve her country and acquaintances/friendships as the most satisfactory. She had not looked for a civilian job but felt confident of her chances of finding a good one.

The typical nurse with five through 11 years of service was also female, less likely to be planning to serve in the Reserves (45 percent) and more likely to be planning a 20 year career on Active Duty. Her paygrade was 03 and she did not have remaining obligated service. She was 33 years old, and began Active

service at age 26 with a bachelor's degree (which was still her highest degree) and was married but had no accompanying children. Her spouse was not serving on Active Duty with the Army (though 48 percent of the spouses for this tenure group were in the Army). Her total family income for 1984 was about \$42,600. She found the chance to serve her country and medical care the two most satisfactory aspects of her military job while considering the chance for promotion and working conditions to be the least satisfactory. She had not looked for an alternative job but was confident about her prospects.

The typical nurse who had been on Active Duty for 11 or more years was unlikely to plan on serving in the Reserves (15 percent). She was a white female who had entered the service at age 22 and was currently 37 years old. Her rank was 04. She entered the Army with less than a bachelors degree but now held a masters degree. She was married and had at least one accompanying child. Her spouse was not serving on Active Duty with the Army. Her 1984 total family income was about \$52,400. This nurse found the chance to serve her county and acquaintances/ friendships to be the most satisfactory elements of her job and rated promotion opportunities and post-service educational benefits as the least satisfactory. She had not sought a civilian job in the preceding year but considered her chances of finding a good job to be very good.

While these nurse officers showed a declining interest in the Reserves as tenure increased, the differences among tenure groups were not so great as might be expected, perhaps because they are so much contemporaries in age. All three tenure groups showed an awareness of civilian opportunities as well as a high regard for the patriotic and social interaction aspects of Army service.

#### Multivariate Analysis

Logistic regression was used to investigate the effects of a group of

characteristics on the intentions of an Active Duty Army nurse to join the Reserves. A multivariate approach provides a means for assessing the individual and joint effects of the many factors which the descriptive approach indicates may have an influence on this decision. The decision to join or not to join the Reserves was viewed as a dichotomous choice and a logit model was estimated to predict the likelihood that an individual nurse with particular individual attributes would indicate an intention to join the Reserves.

Models were estimated for two population subgroups based on tenure and for three subgroupings based on marital status. The tenure groups were comprised of those with zero through four years of service and those with five through 10 years of service. Marital status cohorts consisted of single nurses, married nurses, and nurse-members of dual Army couples.

Candidate explanatory variables were selected from among five categories: demographic information; military specialty and experience; cognitive/perceptual orientation; economic incentives; and perceptions of employment opportunities. Principal components analysis was used to construct a reduced set of source variables from the extensive set of questionnaire items dealing with satisfaction derived from facets of military life and work.

Nurses with less than five years of service were significantly influenced in their Reserve intentions by family status and by satisfaction with their working environment. Married nurses without dependents were less likely than single nurses to plan on serving in the Reserves. Satisfaction with work was positively related to Reserve intentions.

Gender was a significant factor in explaining the Reserve service plans of nurses with five through 10 years of Active Duty service. Male nurses were less inclined than female nurses to join a Reserve or Guard unit. Two pecuniary



characteristics also affected Reserve plans: nonmortgage debt and satisfaction with military benefits. Debt of greater than \$5,000 was positively associated with Reserve intentions while greater satisfaction with benefits (medical, dental, educational, retirement) led to a stronger interest in the Reserves.

For single nurses, educational level had a significant, negative effect on plans for Reserve service as did advancement rate (length of service/grade). Gender was strongly related to the likelihood of joining the Reserves for married nurse officers as were satisfaction with military benefits and nonmortgage debt. Those married nurses who were male, satisfied with benefits, or held debt over \$5,000 were less likely to plan on Reserve service.

For the small cohort of nurse members of dual Army couples, number of dependents was a significantly positive influence on Reserve intentions. The principal components for satisfaction with work and satisfaction with benefits were both significant for this group; the former component positively affected Reserve intentions while the latter had a negative influence.

#### Conclusions

A major source of confusion in discussing programs to encourage Active Duty nurses to look favorably on the Reserves is that some of these same programs also work to increase their satisfaction with Active service and encourage them to remain in their current Active Duty status. This effect should be viewed as a benefit for Total Force Planning rather than as a conflict.

Results of this study indicate that programs which increase a nurse's satisfaction with the working environment will positively affect Reserve intentions. Programs which diminish the severe strains under which many Army nurses currently work (substituting nonRN personnel for RNs, for example) should make both Active and Reserve service more appealing. Efforts to improve the

information which Active Duty nurses receive about Reserve working conditions as well as efforts to address issues of compatibility of Reserve service with family life should also improve the appeal of Reserve participation. A clarification of promotion opportunities within the Reserves might also be useful in attracting prior service nurses to the Reserves.

Policies directed at Active Duty or Reserve Army nurses must be considered in light of the labor market for nurses, since this is the context in which the Army Nurse Corps must operate in recruiting and retaining RNs. Better knowledge of the overall market for nurses will benefit the Army in using its limited recruiting resources to locate and attract these badly needed personnel. Studies should be undertaken which distinguish between prior service and nonprior service Reserve nurse accessions in terms of motivations and personal/demographic characteristics, since former Active nurses have considerable clinical and institutional experience and can immediately make a very productive contribution. Reserve nurse retention should also be investigated in depth since turnover expands the scope of the recruiting mission which is likely to become an even more difficult assignment in the next decade.

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## I. INTRODUCTION

### A. Background

A shortage of nurses has been perceived periodically since World War II (Institute of Medicine, 1983, pp. 51-53). This perception has at times been challenged but there is growing acceptance that the current situation is very serious. Measures such as the ratio of registered nurses to population and vacancy statistics for unfilled nursing positions in hospitals indicate that the slowly growing supply of nurses has not kept pace with the rapid growth in demand for nursing services. (U.S., DHHS, Secretary's Commission on Nursing. 1988). Reasons suggested for this discerned shortage include: inadequacies in the provision of education for nurses (Aiken, 1983), changes in the tastes and aspirations of potential nursing students (Astin, et al., 1987), imperfections in the market for nurses (Feldstein, 1983, pp. 417-442), or an outstripping of supply by the growth in demand (Aiken and Mullinix, 1987). There have been many instances in the last 40 years when civilian hospitals and the military services have been unable to attract the numbers of registered nurses they considered necessary for the provision of a high level of health care for their patients. Prospects for the alleviation of the current nurse shortage in the near future are not optimistic.

High levels of turnover among hospital nursing staff have also created a distressing and costly problem for most hospitals. The National Association for Health Care Recruitment has estimated the annual turnover rate among nurses to be as high as 18 percent for 1986. The military has also experienced serious nurse retention problems, particularly when nurses have been perceived as being in short supply for the nation as a whole (SeEVERS, 1988).

In recent years, predictions of both the supply and demand for nurses have indicated that attracting and retaining nurses may become even more serious problems in the next several decades. These predictions are based on a number of factors including changes in the demographic composition of the U.S. population. As the population ages, a greater percentage will experience acute and chronic debilities which require the application of skilled nursing care. At the same time, the pool of potential nursing students will be declining relatively in proportion to other segments of the population. In addition, recent years have seen a waning vocational interest in nursing among youth and this trend may well continue (Aiken and Mullinix, 1987). While growth in demand for generalist nurses has been great in recent years, an even more rapid increase in demand for nurse specialists has been experienced and programs to train these nurses take considerable time to develop and expand (Institute of Medicine, 1983, pp. 133-156).

Attracting sufficient numbers of nurses to the Army Reserve presents a significant recruiting problem, one which tends to become more severe when the civilian labor market for nurses is tight. Nurse specialists, in great demand in the civilian sector, have an especially important role in the military environment. (Nurse anesthetists, for example, are extensively utilized). The turnover of Reserve nurses is also an important consideration, since replacement is costly and strains specialized recruiting resources. Most importantly, the lack of nursing staff can result in inadequate or prolonged medical care for service members and detract from the paramount goal of personnel readiness. The Department of Defense has determined that 67% of wartime nursing manpower requirements must be met by the Reserve components (SeEVERS, 1988, p. 5).

Most nurses commencing Active Duty service are commissioned in the US Army

Reserve, with a call to Active Duty. These nurses make an 8 year commitment: 3 years of Active Duty service and 5 years of Reserve service. There are a few exceptional accessions who receive Regular Army commissions, usually in recognition of academic excellence or specialized experience. If a nurse wishes to remain on Active Duty after the end of his or her 3 years of Active Service, he or she may apply for a Regular Army commission. Nurses who are nearing the completion of their obligation are usually approached by in-service recruiters and made aware of opportunities in the Reserves. Nurse officers may move between Active Duty and Reserve service several times during their careers.

A Reserve nurse is recruited to fill a specific vacancy in a specific Reserve unit. Most nurses are selected to fill general medical/surgical vacancies while some are recruited to fill particular specialty billets. Reserve units vary widely in function. Some are associated with field evacuation hospitals, others are associated with nurse detachments of medical treatment facilities such as VA hospitals and still others are made up primarily of nurses in a particular specialty. Not all on-duty time is spent in actual nursing: Reserve nurses may fulfill their weekend or annual obligation by attending conferences or training sessions to maintain or upgrade their skills. The characteristics of nurse units and the type of drill involved vary so greatly that a Reservist may choose membership in a particular unit despite considerable transportation cost and inconvenience. A nurse serving on Active Duty has a great variety of opportunities available in the Army Reserve.

## **B. Objectives**

The purpose of this study is to investigate the Reserve intentions of nurses serving on Active Duty. Reserve nurses play a key role in maintaining the

health of Active and Reserve personnel and make an important contribution to Total Force readiness. The Army National Guard and Army Reserve provide approximately 70% of the total Army combat medical care and these units will be needed in the early stages of any major conflict (Seevers, 1988, p. 1). The Army Reserve recruits nurses from the civilian sector and also from among the Active Army Nurse Corps. Nurses with prior Active service are especially valuable because of their extensive experience in the military nursing environment. As the demand for nurses, both civilian and military, increases and the provision of an adequate supply of nurses to meet these demands comes under question, recruiting fully trained professionals with prior service will become even more critical.

The educational requirements for the Reserves are somewhat less stringent than those for Active Duty nurses. An Active Duty nurse must hold a bachelor's degree in nursing from an accredited school. To join the Reserves, an applicant must have either an associate degree in nursing, a three-year nursing diploma, or a bachelor of science in nursing degree. Nurses entering the Reserves with prior Active Duty service are thus desirable on the basis of training as well as military-specific experience.

The 1985 DoD Survey of Officers and Enlisted Personnel provides information on many characteristics and attitudes of a sample of 352 Army nurses serving on Active Duty (Defense Manpower Data Center, 1986). Profiles of Army nurse respondents are presented in this study and their responses are analyzed to identify those factors which influence the intentions of Active Duty nurses to join the Reserves.

Chapter II includes a review of the literature pertinent to the labor market for nurses. It also contains a discussion and summary of the economic



theory relevant to turnover and to second-job holding. Reserve service represents a type of "moonlighting" and much theoretical and empirical work has been done in this area which sheds light on the decision to join the Reserves.

A description of the design and format of 1985 DoD Survey and a discussion of the questionnaire items selected to serve as dependent and explanatory variables appear in Chapter III. Profiles of Army nurses serving on Active Duty are generated from these data.

Chapter IV presents a discussion of the methodology selected for multivariate analysis of the factors influencing a nurse's decision to join the Reserves. Because Reserve intentions are measured as a discrete choice, logit regression was chosen as the appropriate estimation technique. Results from these multivariate models are described here. Separate models were estimated for tenure groups and for marital status groups.

Policy implications of the nurse profiles and multivariate analyses are discussed in Chapter V. Conclusions concerning the characteristics of those who intend to serve in the Reserves provide important insights for force planning policy and recruiting practices. The recommendations for future work included in this chapter point up the importance of integrating information about prior service accessions with that available on nonprior service entrants as well as the need for studies of job turnover behavior specific to Reserve nurses.

## II. THEORETICAL FRAMEWORK AND REVIEW OF EMPIRICAL STUDIES

The life cycle or career history of a prior service Army Reserve nurse provides the framework for our discussion of the literature relevant to an investigation of the Reserve intentions of Active Duty Army nurses. The labor market for nurses influences the decision of a young man or woman to embark on a career in nursing and affects all subsequent career choices, including the decision of a highly qualified professional with extensive civilian employment options to join the Army and serve on Active Duty. The literature dealing with the market for registered nurses provides the necessary context for selecting methodological approaches and evaluating policy issues pertinent to the joining decision. The next career milestone is the decision to leave Active service. The literature relevant to job turnover provides a focus for a discussion of the factors affecting the decision to quit. The final career step is the subsequent (or concurrent) decision to retain an affiliation with the Army by serving in the Selected Reserve. This choice of a part-time (usually secondary) job is addressed by the literature on second job holding.

### A. The Labor Market for Nurses

Interest in the market for registered nurses has grown tremendously in the last few years. This interest has been generated by what are perceived as severe "imbalances" (shortages) in this market. A period of relatively greater nurse availability (late 1970's and early 1980's) preceded this current situation and has slowed recognition of the signs of rapidly growing demand for registered nurses in the face of a very slowly enlarging pool of qualified nurses (U.S., DHHS, Secretary's Commission on Nursing, 1988).

The confusion which usually accompanies discussions of a "shortage"

of nurses is inevitable when no clear distinction is made between the forces of supply and those of demand. It is the interaction of supply and demand which determines wages and employment in a labor market. If an imbalance exists such that the quantity of RNs demanded exceeds the supply of RNs, then, in an efficiently functioning market, wages will rise to eliminate the shortage. If wages do not rise to bring supply and demand into balance, a shortage may persist at the prevailing wage (Feldstein, 1983, Ch. 16).

#### 1. The Supply of RNs

The supply of nurses in the short run is limited by the size of the population licensed to practice nursing. A rising wage can influence those who are qualified but neither employed as RNs nor currently looking for employment as RNs to join the nurse labor force. A common misconception holds that large numbers of nurses have left the profession and might be lured back into the labor force. Survey findings indicate that almost 80 percent of the population of registered nurses are employed in nursing (U.S., DHHS, 1986). This participation rate is greater than the proportion of all women of the appropriate age group who are employed and compares favorably with the labor force participation rates of women with the same age distribution in other professions. About 10 percent of all nurses hold second jobs in addition to their primary jobs and almost 30 percent work part-time (American Nurses Association, 1987). The unemployment rate for nurses is very low (0.9 percent, Bureau of Labor Statistics, 1987). Therefore, there is little hope of a dramatic increase in participation in response to market incentives (U.S., DHHS, Secretary's Commission on Nursing, 1988).

The long run supply of nurses is more elastic (responsive) with respect to wages than the relatively fixed short run supply. There are, however,

strong forces at work to limit the growth of the RN population over time. Falling enrollment and declining admissions for nursing programs and the discontinuation of many basic and specialized programs limit the future supply of nurses. Admissions and enrollments for BSN programs have shrunk even more rapidly than Associate degree programs (National League for Nursing, 1987). This pattern is not likely to alter in the near future.

Young men and especially young women who have traditionally made up the vast majority of new entrants into the profession are not showing a strong vocational interest in nursing. The dominant factor affecting the long run supply of nurses is the broadening of career opportunities for young women. There is low interest in nursing among college freshmen and many of those who show an initial propensity toward nursing as a career change their major field of study (Astin, et al., 1987).

Besides a lack of interest in nursing, there are demographic factors at work to limit future growth in the supply of RNs; the pool of potential entrants (young men and women) is shrinking relative to other groups in the population. Econometric models have been developed to forecast applications to nursing schools and these have identified such factors as youth population, relative wages, RN wages, and financial aid to nursing students (Reid and Rodgers, 1981). Estimates developed by the Secretary's Commission on Nursing (U.S., DHHS, 1988) also indicate that the outlook for a sharp increase in the supply of nurses in the next decade is not optimistic.

## 2. The Demand for RNs

The demand for nurses represents the quantity of nursing services which employers are willing to buy at various prices. Changes in this demand arise from changes in the demand for health care services and from the

substitution of nurses for other nursing providers. The demand for RNs is a derived demand; it is based on the demand for health care services. The demand for hospital health care has shown a relative decline in recent years, absorbing a smaller percentage of total national resources than previously. Various measures of hospital utilization have fallen since the early 1980s (U.S., DHHS, 1987). However, many of the institutional changes (particularly the Medicare prospective payment system) which have limited total usage have also increased the demand for RNs. Hospitals are caring for more seriously ill patients who require specialized nursing services and other institutions which employ nurses (nursing homes and ambulatory care settings) are providing more nursing services to patients (U.S., DHHS, Secretary's Commission on Nursing, 1988; Sloan, et al., 1988).

The long run prospects for the demand for nurses point to continued growth. As the population ages, the need for both inpatient and outpatient care will rise. The elderly are disproportionately large users of nursing services (National Center for Health Statistics, 1988). Advances in medical technology are also expected to be predominantly nurse-intensive in nature (Technology and Aging Advisory Board, 1985). In addition, the amount of nursing care which will need to be provided for persons with AIDS is likely to be great (Andrullis, et al., 1988).

### 3. Market Abberations

Economic theory would predict an increase in Nurses' wages in response to this combination of rapidly growing demand and lagging supply. The evidence is to the contrary, however. The average wages of RNs have declined relative to the salaries of those in comparable professions (Buerhaus, 1987; Aiken, 1987; Aiken and Mullinix, 1987). In addition, the average maximum salary

for nurses is much closer to average starting salary than is the case for other professions (Bureau of Labor Statistics, 1987). Hospital vacancy statistics for RNs, on the other hand, indicate a hospital vacancy rate of 11 percent (National Association for Health Care Research, 1988). Vacancy data are sometimes misleading and estimates vary greatly; some estimates are as high as 14 percent (Iglehart, 1987). It is clear that the vacancy rate for hospital nurses in particular is escalating.

The type of market situation which logically explains these contradictory data is termed a "static shortage" arising from a restriction on the increase in wages which would be necessary to bring the market into equilibrium. "Monopsony" describes such a market where employers are able to control wages because a few firms employ the majority of those in a profession (Feldstein, 1983, Ch. 16). The existence of monopsony implies that, if the wages of nonRN nursing personnel are not so greatly restricted as those of RNs, employers would substitute these personnel for registered nurses who have become relatively cheaper. Employers would also be expected to increase utilization of temporary services and use part-time RNs more extensively. All of these developments have characterized the market for nurses recently (Williams, 1982). In the long run, as RN wages fall behind those in comparable occupations, potential new entrants into the profession would be discouraged by the low rate of return and those in the profession would experience greater job dissatisfaction, resulting in higher levels of turnover. These conditions are also currently recognized as features of the long run market for RNs.

#### 4. Military Nurses

The military services have felt the repercussions of the increasingly tight market for nurses. Recruiting adequate numbers of both Active

Duty and Reserve nurses to meet the health care needs of servicemembers and their dependents has proved to be a challenge for the Army and for the other services. The Army Nurse Corps budgeted end strength for fiscal year 1988 was 4,574 nursing positions of which 4,038 nurses were available for distribution. Authorized positions numbered 4,417, or 379 above the number actually available (U.S. Army HSC, 1988). Shortfall has been particularly acute in critical nurse specialties. It has been estimated that Army Active Duty and Reserve units lack more than 40 percent of operating room nurses and more than 50 percent of nurse anesthetists needed to meet war time requirements (SeEVERS, 1988). Because the Army competes with civilian employers for nurses, the retention or turnover characteristics of the labor market for RNs are of great importance to both Reserve and Active Duty planning and recruitment strategies.

#### B. Turnover Theory and the Decision to Leave Active Service

##### 1. Models of Turnover Behavior

Attrition from military service represents a category of labor market mobility known as turnover. Turnover is defined as the degree of individual movement across the membership boundary of a social system (Hamermesh, 1984, p. 171). Such movement may be either voluntary or involuntary. Involuntary turnover occurs when circumstances dictate a change in employment status which does not represent the preferences of the employee. Voluntary turnover, on the other hand, is the outcome of the employee's decision to leave his or her current job. A body of theoretical work has emerged which attempts to explain this decision making process.

Mobley (1977) identified these factors as relevant to the turnover decision: job evaluation, job satisfaction/dissatisfaction, thinking of quitting, expected utility of job search and cost of quitting, intention to

search, search for alternatives, evaluation of alternatives, comparison of alternatives versus present job, and finally, intention to quit/stay.

Mobley (1978) later expanded his model of the turnover decision process to include age of employee and job tenure. Dissatisfied with the predictive ability of those model and those found in previous research, Mobley, et al. (1979) developed a model which differentiated between present job satisfaction and future utility of current and alternative jobs, and also encompassed the nonwork related factors involved in the turnover decision. The focus of this expanded model was the intention to quit as the immediate precursor to turnover. Intention to quit was in turn hypothesized to be determined by three factors: (1) satisfaction with the present job; (2) attraction or expected utility of the present job; and (3) attraction or expected utility of alternatives.

Miller, et al. (1979) regrouped the variables in the Mobley, et al. (1979) model and focussed on withdrawal cognition (thinking about quitting) as a behavior influenced by job satisfaction and career mobility and leading to turnover. Michaels and Spector (1982) also modified the Mobley, et al. (1979) model to include preemployment expectations and degree of organizational commitment. Dalessio, et al. (1986) used path analysis to deal with problems of multicollinearity which were identified in tests of the Mobley, et al. model. Bluedorn (1979) emphasized the role of intention to leave as a variable intervening between job satisfaction and turnover in a similar model.

Cotton and Tuttle (1986) have summarized the correlates of turnover identified in these and other models. The correlates categorized as external factors included:

Employment perceptions,  
Unemployment rate,



Accession rate, and  
Union presence.

Those classified as work-related included:

Pay,  
Job performance,  
Role clarity,  
Task repetitiveness,  
Overall job satisfaction,  
Satisfaction with pay,  
Satisfaction with supervision,  
Satisfaction with co-workers,  
Satisfaction with promotion,  
Opportunities, and  
Organizational commitment

Finally, factors identified as personal correlates included:

Age,  
Tenure,  
Gender,  
Biographical information,  
Education,  
Marital status,  
Number of dependents,  
Aptitude and ability,  
Intelligence  
Behavioral intentions, and  
Met expectations

Steers and Mowday (1981) and Mowday, et al. (1982) proposed a turnover process model describing the intention to leave as mediating between affective responses and turnover. Affective responses in this model were conditioned by job expectations which in turn reflected a variety of exogenous and job related variables as well as individual differences. Arnold and Feldman further investigated the nature of the intention of leave/stay variable by separating it into the intention to search for alternatives and the intention to change positions. The latter facet appeared to be the more influential.

Job satisfaction emerges as an important factor in many models of turnover behavior and a literature has evolved to explain the determinants of satisfaction. McCormick and Ilgen (1980) have suggested that the degree of

satisfaction results from a comparison between an individual's "standard" and the degree to which that standard is realized in his job. The farther apart the standard and actual experience, the less satisfied the individual. Porter and Lawler (1968) presaged this approach with their focus on the role of met versus unmet expectations in determining the level of satisfaction derived from a particular job.

Studies of job satisfaction have investigated the aspects of employment which are sources of satisfaction or dissatisfaction for employees. Herzberg, Mausner, and Snyderman (1959) classified these into (1) satisfiers-content factors which yield satisfaction and (2) dissatisfiers - context factors which yield satisfaction in relationship to the job. The presence of content factors such as recognition of achievement result in satisfaction while the presence of context factors such as pleasant working conditions do not, in the absence of content factors, guarantee satisfaction but will lead to dissatisfaction if they are absent. Scarpello and Campbell (1983) looked at the satisfaction generating characteristics of the facets of a job and compared these with global measures of job satisfaction, concluding that facet satisfaction did not completely explain overall satisfaction.

In summary, the intention to leave/stay and job satisfaction have been identified in the literature as important links in the turnover process. The contribution of the turnover literature to the theoretical framework of this study lies in the perspective into which it puts these important factors.

## 2. Nurse Turnover Studies

While nurse recruitment and the factors which influence the long run supply and demand are of great importance for both nurses and their

employers, problems of nurse retention are of particular importance to individual employers. The RN turnover rate has been estimated to be as high as 18 percent for 1986 (National Association for Health Care Recruitment, 1986). A recent survey conducted by the American Hospital Association (1987) found that 49 percent of the surveyed hospitals indicated that 11 to 30 percent of their full time RNs had tenures of less than one year.

Studies of nurse retention have been conducted to identify factors which might influence nurses to remain in or reenter the profession. The Institute of Medicine (1983) identified promotion opportunities in clinical practice and administration, better salary structures, a larger role in policy formulation, and improved working conditions as significant influences on turnover. The National Commission on Nursing (1983) identified similar factors and emphasized the important role of nursing administration in the hospital setting as it relates to job dissatisfaction with staffing, scheduling, salary, and career development.

There have been many studies of nurse turnover but only a limited number have approached the question of nurse retention from a multivariate perspective. A multivariate approach reflects the most recent developments in turnover modelling. Weisman, et al. (1981) categorized the determinants of turnover as organizational and nonorganizational. He considered turnover to be the result of the effects of individual characteristics, job attributes, and work organizations. Personal attributes included marital status, length of employment, number of children, first hospital position and degree level. Job attributes and work organizations included overtime, rotating shifts, position level, work load, educational level of the unit, average tenure of unit, head nurse responsiveness, communication with head nurse, and time for

professional development. Autonomy, job satisfaction, and intent to leave were viewed as intervening variables. This model was developed in a study of 1,000 nurses in two university affiliated hospitals.

Martin (1982) focused on commitment indicators as predictors of intent to leave. He studied a sample of 110 RNs and other nursing personnel. Four facets of the concept of commitment were identified: community, career, organizational, and job commitment. Results of the analysis (multiple regression was employed) indicated that only job commitment was predictive of intent to leave. The inclusion of personnel other than RNs make it difficult to judge the applicability of these findings to the registered nurse population.

Price and Mueller (1982) tested a model in which job satisfaction and intent are intervening variables between the determinants and turnover. The set of determinants included: opportunity, routinization, participation, communication, social integration, pay, distributive justice, promotion, professionalism, training, and responsibility to relatives in the local area. The only one of these determinants which showed a significant direct effect on turnover was opportunity, the availability of alternative jobs while seven of the other factors had an indirect effect through job satisfaction and three had a direct effect on intent to say. Job satisfaction, training, and responsibility for relatives affected intent strongly. Pay had a significant effect on intent but limited influence on job satisfaction. Both path analysis and multiple regression techniques were used.

West (1983) suggested a similar model with job satisfaction as a precursor to alternative job search and turnover. Taylor and Covalesski (1985) compared the factors which influence internal transfer with those affecting turnover. They considered career plans, work values, and job satisfaction in

another sequential model. Satisfaction did not predict retention well, while career plans were more successful in this respect. The ability to make internal moves, especially nonpromotional ones, did not have a significant effect on retention.

### 3. Military Nurse Turnover

Nichols (1971) undertook a study of 180 Army nurses within four months of completing their initial obligation and whose first nursing job was with the Army. The study was designed to determine the relationship between intention to remain or leave and satisfaction with selected working and living experiences as well as perceived ease of movement to the civilian sector. Each of the working/living experiences was rated on three scales: importance to the nurse, satisfaction with the Army, and the opportunity for satisfaction in a civilian job as compared to the Army. There appeared to be no difference between stayers and leavers in how they rated the importance of these factors. Stayers did appear to be more satisfied than leavers. Those who perceived movement to the civilian sector as difficult were less satisfied. There was a lack of significant interaction between satisfaction and perceived mobility. Those who planned to leave were more likely to compare an alternative civilian job favorably to the Army.

A study comparing Army nurse "specialists" with "generalists" was conducted by Johns, et al. (1977). Army nurse clinicians and practitioners were compared with a control group of staff nurses in order to identify factors which this specialized group perceived as influencing their job satisfaction and retention. The scale developed for the study measured both the importance of and current satisfaction with a group of job factors which included: perceptions of authority, competence of supervisors, communication, work environment, equipment,

recognition, vacations, and leave. The nurses were also asked to rank and weight job satisfaction factors. The clinicians and practitioners were more satisfied than the staff nurses and were more confident about the availability of good jobs in the civilian sector. However, there was no significant difference in intention to remain between the two groups.

Lensing (1984) developed a model based on comparison levels of alternative job opportunities. The responses of military nurses included in the 1978 DoD Survey of Officers and Enlisted Personnel were evaluated using stepwise discriminant analysis to select the set of alternative job attributes which best discriminated between stayers and leavers. The attributes which were significant for initial obligors differed from those which appeared to be important for those beyond their initial commitment.

#### C. Second Job Holding Studies and the Reserve Participation Decision

The implications of turnover analysis for the Reserve intentions of Army officers are important in two respects: the decision to leave Active service, while representing a loss for the Active forces, has a positive impact on the Reserves. Quitting Active service may be viewed as a rejection of the Army as an employer but the subsequent (or concurrent) decision to serve with the Selected Reserves may alternatively be viewed as a desire to retain the affiliation with the employer at a less intense level. In order to understand this choice of part time service it is necessary to look into the theory and literature pertaining to second job holding.

##### 1. Moonlighting theory

Reserve participation can be viewed as a part-time job which attracts "moonlighters" who also hold full-time (civilian) jobs. These

individuals work a specified number of hours on their primary jobs but desire to increase their incomes by working additional hours as well. If additional hours are not available on the primary job, they must acquire a second job. Reservists work eight or 16 hours per month and because hours of work are so restricted, this activity fits the definition of a secondary job.

Reserve participation offers the moonlighter the opportunity to earn more income as well as shopping privileges at military exchanges and potential retirement benefits. It also provides such nonmonetary benefits as the esprit de corps of military service and the opportunity to serve ones country.

The economic theory of second job holding suggests that the hours of work supplied to the labor market by an individual will be a function of labor market income and the individual's evaluation of the time spent on all nonmarket activities (leisure time). Workers will then supply to the labor market the number of hours for which earnings are sufficient to compensate for the foregone leisure time. For the desired number of labor hours, the wage rate equals the individual's marginal value of leisure time. Both wages and hours worked affect the moonlighting decision in that the probability of moonlighting increases with: lower primary wages, fewer hours worked on the primary job, higher secondary wages, and more hours offered by the secondary job (Shishko and Rostker, 1976).

The Reserve job differs from other moonlighting or part-time jobs in several respects, the most important of which is probably the required commitment to some specified length of service. In addition, the Reservists must pay nonreimbursable travel costs to reach his unit, though some portion may be deductible as a business expense. A period of full-time training is also required annually and this presents a potential source of conflict with the

civilian job. The limitation on available working hours offered by the Reserves is another unique feature.

Shishko and Rostker (1973) developed this theory of moonlighting to explain the behavior of Air Force Reservists. They identified and evaluated the effects of economic variables on the decision to moonlight and showed that the probability that an individual will decide to moonlight is increased by: lower primary wages, fewer hours worked on the primary job, higher secondary wages, and more hours offered by the secondary job.

This model was subsequently modified by McNaught (1981) to include features of the employment context unique to the Reserves including the effects of fixed drills and travel costs. The final model specified Reserve participation as a function of: the Reserve wage; the civilian primary wage; the civilian secondary wage; hours worked on the primary job; the unemployment rate; the eligible population, information on Reserve opportunities, travel costs; and regional characteristics.

Grissmer and Kirby (1985) analyzed data on nonprior service enlisted Reservists who entered military service in 1980. They found that Reservists, unlike civilian moonlighters, appear to be motivated more by a preference or taste for the job itself than by monetary incentives. Grissmer, et al. (1982) found a similar lack of significance in the relationship between pay and enlisted Army Reserve participation. An explanation for this is that net, after tax income derived from Reserve pay is relatively small and additional costs (transportation, lost civilian earnings, etc.) reduce net earnings even further.

## 2. Reserve nurses as second job holders

It has been estimated that, for the Reserves as a whole, about



93 percent of all participants hold a full time civilian job (Thomas, 1986). Women are more likely than men to work part time rather than full time, especially when they have young children and there are many Reserve nurses whose only paid employment is their Reserve job. On the other hand, nurse labor force participation rates are quite high, given their age distribution, and it seems reasonable to assume that, for the great majority, the Reserves provides a second job.

Studies of Army Reserve nurse motivations for joining the Reserves have usually been based on surveys of the membership of a Troop Program Unit or other administrative subgrouping and have used descriptive and bivariate methods rather than multivariate techniques. Texidor (1987), for example, surveyed 193 members of a single Medical Brigade to identify factors which influenced nurses to enter the Reserves and to remain affiliated. Sixty percent of the respondents had previously served on Active Duty and mean length of Active service was 3.6 years. They had served with the Reserves for an average of slightly over seven years but over 50 percent had participated in the Reserves for three years or less. The factors identified through bivariate analysis to be most important for entry were: patriotism, being able to practice nursing from a different perspective, enhance self-worth, additional career direction providing contrast to civilian work, and promotion/ personal and professional recognition.

### III. PROFILE OF AN ACTIVE DUTY NURSE

#### A. Data

##### 1. The 1985 DoD Survey of Officers and Enlisted Personnel

The data selected for use in this study were derived from the 1985 Survey of Officers and Enlisted Personnel. The office of the Assistant Secretary of Defense (Force Management and Personnel) sponsored the administration of this survey instrument to a sample of approximately 132,000 Active Duty members of all four military services who had completed at least four months of Active service as of September 30, 1984. Officers, females, and Marine Corps personnel were sampled at a higher rate to provide large enough cohorts for detailed analyses of these groups. Data collection was completed in June of 1985 (Defense Manpower Data Center, 1986).

The survey was designed to aid in examining enlistment and retention decisions, career orientation, and policies affecting military members and their families. It provides a unique opportunity to investigate the attitudes of nurses toward specific characteristics of their jobs and toward various aspects of military life as well as the role of the Army in their career plans. The nine subject areas of the questionnaire are described in Appendix A.

##### 2. Selection of the nurse sample

Among the 7,912 Army officers surveyed, 352 were Army nurses. Three of these officers did not answer the questionnaire item dealing with intention to join the Reserves and were omitted from our study. Another 15 Army nurses indicated that they had served on Active Duty 20 years or more and these were not included in the analysis because they were not eligible for Reserve service. The remaining 334 were partitioned into 3 tenure groups:

Group I	0 - 4 years of Active Duty service (n=105)
Group II	5 - 10 years of Active Duty service (n=106)
Group III	11 - 19 years of Active Duty service (n=123).

Division of the sample into these groups yields more meaningful analyses than would have been obtained by treating all Army nurses together, since the tendency to join the Reserves diminishes as length of Active Duty service increases, as shown in Table 1. The length of service groupings were chosen to reflect typical decision points in an Army officer's career and to yield fairly homogeneous cohorts in terms of tenure, which is such an influential factor. The shortest length of service group was comprised mainly of those who were completing an initial obligation. The group with 5 through 10 years of service had usually made a second commitment to serve and were approaching a decision about making a 20 year career in the military while the officers with 11 through 19 years of service were more likely to have chosen the career path.

Most nurses beginning Active Duty service have made an 8 year commitment to the Army, including a 5 year Reserve obligation and therefore nurses with 4 or fewer years of service showed a strong tendency toward Reserve service. But even among this most limited tenure group, 33% were either unsure about Reserve service or did not intend to join. Why weren't the great majority of this group planning Reserve service? Several factors are probably at work: first, nurses sometimes move between Active and Reserve service and some of these short tenure officers may already have spent considerable time in the Reserves, and second, some nurses enter the Army with a Regular Army commission rather than a Reserve commission and thus do not have the same Reserve obligation. In addition, a nurse may be considering service in the IRR rather than the Selected Reserve or the Guard.

At the other end of the tenure continuum, nurses with 11 through 19

Table 1. Reserve intentions of Active Duty Army nurses 1985, by length of service group (percent)

Intention to join the Reserves	Length of Active Duty service			
	I 0-4 years (n=105)	II 5-10 years (n=106)	III 11-19 years (n=123)	All (n=334)
Definitely yes	38.1	17.0	4.1	18.9
Probably yes	8.5	28.3	10.6	21.9
Don't know	16.2	25.5	13.0	18.0
Probably no	10.5	15.1	22.0	16.2
Definitely no	6.7	14.2	50.4	25.1

years of service were not as likely to intend to join the Reserves as were their counterparts with fewer years of service, but they did not show as marked a disinclination as would be expected for senior officers with more than half of a 20 year career already served. Twenty eight percent of these nurses were either unsure about their Reserve plans or did intend to join a Reserve unit. This, again, probably reflects the complex nature of some nurses' movements from Active Duty to Reserve status during their careers and possibly the strength of the Army Reserve's demand for these highly trained and experienced health care professionals.

## B. Profile of an Army Nurse Serving on Active Duty

### 1. Biodemographic characteristics

#### a. Gender, race/ethnic group, age, citizenship

Table 2 indicates that the 334 nurses serving on Active Duty who were included in the 1985 DoD Survey of Officers and Enlisted Personnel were predominantly female (91.6%). The stratification procedure used in selecting the survey sample drew more heavily from females than males and may lead to an

Table 2. Gender, race/ethnic group, current age, age at entry, citizenship, birth location, and main language Active Duty Army nurses, 1985, by tenure group (percent or mean)

	Tenure group			All (n=334)
	I 0-4 yrs (n=105)	II 5-10 yrs (n=106)	III 11-19 yrs (n=123)	
Gender				
Male	3.8	10.4	10.6	8.4
Female	96.2	89.6	89.4	91.6
Race/ethnic group				
White	77.1	75.5	92.7	82.3
Black	17.1	17.9	2.4	12.0
Hispanic	9.5	.9	2.4	4.2
Other	5.7	6.6	4.9	5.7
U.S. citizen	98.1	100.0	100.0	99.4
Born in U.S.	90.5	93.4	92.7	92.2
English main language	90.5	92.5	96.7	93.4
Age, current (years)	29.9	33.4	37.3	33.7
Age at entry (years)	27.6	25.7	22.3	25.0

understatement of males in the nurse population (male nurses make up 15-20 percent of the ANC). Most of these nurses were white (82.3%), with 12% classified as black, and 5.7% describing their race as "Other." About 4% identified themselves as Hispanic.

Table 2 also shows the distribution of these demographic characteristics by tenure group. The percentage of nurses surveyed who were male was greater for the two higher tenure groups than for the group with the shortest length of service (about 10% as compared with around 4%). Blacks were not nearly so strongly represented among the longest tenure group as they were among nurses with 10 or fewer years of service (only 3.4% of Group III were black, while 17.1%

with 10 or fewer years of service (only 3.4% of Group III were black, while 17.1% and 17.9% of Groups I and II, respectively, described their race as black). There were very few Hispanics among those surveyed (only 14) and most of these (10) had served less than 5 years.

The vast majority of Army nurses surveyed were born in the United States (92.2%) and were American citizens (99.4%). English was the main language spoken at home for 93.4% of the cohort. Those serving the shortest length of time were slightly less likely to be native-born U.S. citizens speaking English at home as shown in Table 2.

The average current age for this group was 33.7 years while their average age on beginning Active Duty service was 25.0 years. Current age, of course, increased with length of service. Age at entry showed an inverse relationship to tenure, with the longest tenure group beginning Active service at 22.3 years of age and the shortest tenure group averaging 27.6 years old at entry. The rise in entry age is very pronounced and is reflected in other demographic measures such as marital and dependent status.

b. Level of education

All of this group of nurse officers held a bachelor's degree or a more advanced degree at the time of the survey. About 32% had attained a master's degree and almost 1% had completed doctoral degrees as shown in Table 3. As would be expected, the longest tenure group had the greatest number of higher degrees.

When entering Active service, almost 19% of the total sample did not have a degree from a four year college. All but one of the tenure cohort with 0 to 4 years of service began serving on Active Duty with at least a bachelor's degree. The two higher tenure groups had 20.1% (Group II) and 34.2%

Table 3. Highest educational degree, current and at entry, and parents' levels of education, Active Duty Army nurses, 1985, by tenure group (percent or mean)

	Tenure group			
	I	II	III	All
	0-4 yrs (n=105)	5-10 yrs (n=106)	11-19 yrs (n=123)	(n=334)
Highest educational degree, current				
Bachelor's	87.6	60.4	40.2	61.6
Master's	12.4	36.8	43.4	31.5
Doctoral	-	-	2.5	.9
Other	-	2.8	13.9	6.0
Highest educational degree at entry				
-less than bachelor	1.0	20.1	34.2	19.1
-bachelor's	90.5	67.6	49.2	68.2
-master's	8.6	10.5	2.5	7.0
-doctoral	-	-	-	-
-other	-	1.9	14.2	5.8
Educational level of father (years)	12.2	12.3	12.9	12.5
Educational level of mother (years)	13.2	12.8	12.9	13.0

(Group III) of their members entering below the bachelor's level. This divergence by tenure group represents changes in standards over the past two decades.

c. Parent's educational level

The educational level of the mothers of this group of nurses was slightly higher than that of their fathers. Fathers had a mean value for years of schooling of 12.5 years while mothers had completed an average of 13.0 years. Father's education increased with tenure while mother's education displayed quite a different pattern, with the highest level reached by Group I and the lowest by

Group II.

d. Marital status and dependents

A little more than one half of the nurses in the sample were married (56.3%), as shown in Table 4. Of the 188 married nurses, 147 were married for the first time. Of the 146 unmarried survey respondents, 46 were divorced. Almost one-third of the sample had never married. Table 4 also provides information on marital status at entry. Most of the Army nurses surveyed were unmarried when they began Active Duty service (79.9%).

Table 4. Marital status, current and at entry,  
Active Duty Army nurses, 1985, by tenure group  
(percent)

	Tenure group			All (n=334)
	I 0-4 yrs (n=105)	II 5-10 yrs (n=106)	III 11-19 yrs (n=123)	
Current marital status				
-single	40.0	26.4	22.8	29.3
-widowed	1.0	.9	-	.6
-divorced	11.4	16.0	13.8	13.8
-married 1 time	38.1	39.6	52.8	44.0
-remarried	8.6	12.3	9.8	10.2
-separated	1.0	4.7	.8	2.1
Entry marital status				
-single	52.4	74.5	83.6	70.9
-widowed	1.0	1.9	-	.9
-divorced	11.4	8.5	4.9	8.1
-married 1 time	29.5	14.2	11.5	18.0
-remarried	3.8	-	-	1.2
-separated	1.9	.9	-	.9

About 40% of the nurses with 4 or fewer years of service were married while almost 57% of those with 5 to 10 years of service and just over 63%



of those with 11 to 19 years of service were married at the time of the survey. The percent married at entry was 35.2 for Group I, 15.1 for Group II, and 11.5 for Group III. (This difference in marital status at entry may be (partially) explained by the younger age at entry of the longer tenure groups).

About 46% of the cohort were accompanied by one or more children. The number of accompanying children and the age of the youngest accompanying child are indicated in Table 5. Among the shortest tenure group, the most typical number of children (for those who had children) was one child, while it was 2-3 children for the two higher tenure groups.

Table 5. Family configuration, number of accompanying children and age of youngest accompanying child, Active Duty Army nurses, 1985, by tenure group (percent)

	Tenure group			
	I	II	III	All
	0-4 yrs (n=105)	5-10 yrs (n=106)	11-19 yrs (n=123)	(n=334)
Family configuration, respondent and:				
-spouse only	21.9	20.8	27.6	23.7
-children only	11.4	12.3	8.9	10.8
-spouse and children	20.0	24.5	33.3	26.3
-spouse, children and other	-	1.9	1.6	1.2
-not accompanied	46.7	40.6	28.5	38.0
Children accompanying				
-none	68.6	63.2	57.7	62.9
-1	22.9	15.1	12.2	16.5
-2 to 3	6.7	20.8	30.1	19.8
-4 or more	1.9	.9	-	.9
Age of youngest accompanying child:				
-0 to 2 yrs	9.5	13.2	13.0	12.0
-3 to 5 yrs	5.7	5.7	12.2	8.1
-6 to 11 yrs	8.6	9.4	9.8	9.3
-12 to 17 yrs	4.8	4.7	7.3	5.7
-more than 17 yrs	2.9	2.8	-	1.8
no accompanying children	68.6	63.2	57.7	62.9

A more complete picture of family configuration may also be gleaned from Table 5. About 24% of the nurse sample were accompanied only by a spouse while 10% lived with their children only. Eighty-eight (26.3%) of the nurse respondents were accompanied by both a spouse and children and very few (4) households included other family members. The picture which emerges is one of wide diversity in family structure. The three tenure groups show similar patterns of family composition.

## 2. Military background

Table 6 includes information on the military background characteristics of the Army nurses surveyed. The distribution of officer-nurses by paygrade shows that the 01s and 02s were concentrated in the shortest tenure group while the 03s and 04s were more prevalent among Tenure Group II and III, respectively. All of the 01s included in the survey had served less than 5 years and they made up almost 22% of Group I. About 36% of the group with 0 to 4 years of service had attained the rank of 02 while the percentage of 02s in Group II was about 6% and in Group III was nil. Once the rank of 03 was reached, the pattern was altered, with nearly 40% attaining this rank among Group I, 67% among Group II, and 15% among Group III. The distribution of 04s among the three tenure groups showed only 3% holding this rank in Group I, 22% in Group II, and the majority, 69%, in Group III. Those with a rank of 05 made up 6% of the entire sample, and they were distributed among the two largest tenure groups (4% of Group II and 14% of Group III). There were no 07s among the Army nurses surveyed. The modal paygrade for the cohort as a whole was 03.

The average length of service for these Army nurses was 8.7 years, as shown in Table 6. This table also reveals that most of those in the shortest tenure group were still serving in their initial obligation (about 80%), while

Table 6. Military background characteristics,  
Active Duty Army nurses, 1985, by tenure group  
(percent or mean)  
(concluded on next page)

	Tenure group			
	I	II	III	All
	0-4 yrs	5-10 yrs	11-19 yrs	(n=334)
	(n=105)	(n=106)	(n=123)	
Paygrade				
-01	21.9	1.9	-	7.5
-02	36.2	5.7	-	13.2
-03	39.0	67.0	15.4	39.2
-04	2.9	21.7	69.1	33.2
-05	-	3.8	13.8	6.3
-06	-	-	1.6	.6
Years of service (mean)	2.25	7.72	15.06	8.70
Time remaining in initial obligation				
-no initial obligation	2.0	7.8	14.0	8.3
->1 yr after	12.7	78.4	84.3	60.0
-in 1st yr after	5.9	1.0	.8	2.5
-<1 yr remaining	22.5	3.9	.8	8.6
-1-2 yrs remaining	31.4	4.9	-	11.4
-2-3 yrs remaining	17.6	2.9	-	6.5
-3-4 yrs remaining	6.9	1.0	-	2.5
-4-5 yrs remaining	1.0	-	-	.3
Commission source				
-direct appointment	77.7	71.6	33.1	59.2
-ROTC, Academy and Warrant officer programs	15.6	5.9	-	6.4
-Reserve officer candidate	2.9	3.9	-	2.1
-health Professional scholarship	1.0	9.8	19.0	10.4
-medical specialist program	1.0	1.0	2.5	1.5
-other	1.9	7.8	45.5	19.9
Assignment location				
-CONUS	74.3	69.8	67.5	70.4
-Hawaii	13.3	8.5	10.6	10.8
-Germany	10.5	16.0	15.4	14.1
-other	1.9	5.7	6.5	4.7

Table 6. Military background characteristics,  
Active Duty Army nurses, 1985, by tenure group  
(percent or more)  
(concluded)

	Tenure group			
	I	II	III	All
	0-4 yrs (n=105)	5-10 yrs (n=106)	11-19 yrs (n=123)	(n=334)
Average months at present post	18.8	19.8	24.3	21.2
Average months spent overseas	5.5	17.3	40.7	22.3
Average number of moves	2.0	4.7	7.8	5.0
Percent living in base housing	22.9	21.7	24.6	23.1

only 13% of the 5-10 years of service group and about 2% of the 11-19 years of service group had obligated service remaining.

Most of the nurses included in the survey received their commissions by direct appointment from civilian life (59.2%) as shown in Table 6. Among those with the least tenure, Group I, about 78% were commissioned in this manner and the proportion is almost as high (about 72%) for those in Group II, Direct appointment was not nearly so common (only 33%) for those with the greatest tenure, Group III. The rather large number of nurses in Group III (about 46%) who indicated a commissioning source "other" than those listed in the survey question probably reflects the now discontinued Walter Reed Army Institute of Nursing Program (WRAIN) which trained nurses from 1966 to 1978.

Table 6 provides a picture of the geographic distribution of assignment locations for Active Duty Army nurses. About 70% of all the respondents were stationed in the continental United States. Germany (14%) and

Hawaii (11%) were the most common nonCONUS locations for Army nurses. The average length of time assigned to current location was 21.16 months. Months at present location increased with length of service as shown in Table 6. Months spent overseas averaged 22.30 and increased sharply with length of service. The average number of moves during military service was five, ranging from two for Group I to almost eight for Group III. The percentage of nurse respondents living in base housing did not appear to vary by tenure group and was about 23% for the entire sample.

The Active Duty nurses responding to the survey represented a wide variety of specialties within their profession. Table 7 indicates that the most common occupational classification was that of medical-surgical nurse (about 51%). Medical-surgical nurses comprised 59% of the longest tenure group but only 40% of the shortest tenure group. Nurse anesthetists made up close to 4% of the total sample and operating room nurses about 11%. Nurses trained and qualified in these two areas are in great demand in both Reserve and Active Duty environments. Operating Room nurses made up a larger proportion (14.3%) of those with 0-4 years of service than they did for those with longer service (9-10%). Nurse anesthetists, on the other hand, were more prevalent among those with 11-19 years of service, though their total number was very small. Clinical nurses include those who specialize in critical care. This is another area of specialization which the Army Reserve recognizes as being in short supply. Clinical nurses made up about 13% of all those surveyed. They were heavily concentrated in the group with 0-4 years of service, making up a third of that tenure group while comprising only 7% of the 5-10 years of service cohort and having no representatives among those with 11 or more years of service.

Table 7. Military occupational classification,  
Active Duty Army nurses, 1985, by tenure group  
(percent)

Occupational classification	Tenure group			All (n=334)
	I 0-4 yrs (n=105)	II 5-10 yrs (n=106)	III 11-19 yrs (n=123)	
-nurse administrator	1.0	-	2.4	1.2
-community health nurse	2.9	3.7	3.2	3.3
-psychiatric/mental health nurse	3.9	2.8	.8	2.4
-pediatric nurse	2.0	14.1	6.4	7.5
-operating room nurse	14.3	9.4	9.9	11.1
-nurse anesthetist	1.0	3.8	5.6	3.6
-obstetric & gyn- ecologic nurse	1.0	9.4	12.1	3.6
-medical-surgical nurse	41.0	0.0	59.4	50.7
-clinical nurse	33.3	6.6	-	12.6

### 3. Spousal characteristics and attitudes

#### a. Married nurse-officers

The 1985 DoD Survey of Officers and Enlisted Personnel was designed to focus particular attention on family issues. Many of the questionnaire items dealt with the characteristics and attitudes of spouses. Table 8 presents information on the age, gender, and level of education of the spouses of the married nurses included in the sample as well as the average number of years the respondent had been married to the current spouse at the time the survey was fielded.

Females were not so predominant among married respondents as they were among the entire group of nurses. The spouses of the group with the shortest tenure were 8.0% female, while women made up 14% of the spouses of the

Table 8. Demographic characteristics of spouses  
of Active Duty Army nurses, 1985

	Tenure group			All (n=188)
	I 0-4 yrs (n=50)	II 5-10 yrs (n=60)	III 11-19 yrs (n=78)	
Average age of spouse in years	32.8	33.5	37.6	35.0
Gender of spouse, % male	92.0	83.3	85.9	86.7
Average years of education of spouse	15.8	15.8	16.0	15.9
Average length of marriage in years	6.2	5.3	9.9	7.5

group of nurses with the greatest tenure.

The mean age of spouse was slightly under 35 years and ranged from 32.8 years for those with 0 through 4 years of service to 37.6 years for those with 11 or more years of service. The average age for all respondents was 33.7 years (see Table 2).

The spouses of Active Duty Army nurses averaged almost 16 years of formal education as shown in Table 8. Those who were married to officers with 10 or fewer years of service had completed only slightly fewer years of schooling than those who were married to nurses who had served 11 or more years.

Married nurses included in the sample had been married (to their current spouse) for an average of nearly 7.5 years. The tenure group married for the shortest period of time (5.3 years) was that with five through 10 years of service. Those with 11 through 19 years of service had been married an average of almost 10 years. The average duration of marriage among the shortest tenure group (0 through 4 years) was 6.2 years.

The military participation of the spouses of Active duty Army

nurses is of particular interest because of the policy issues which address dual military couples. Table 9 describes both the current and previous military

Table 9. Military participation of spouses of Active Duty Army nurses, 1985, by tenure group (percent)

	Tenure group			
	I	II	III	All
	0-4 yrs (n=50)	5-10 yrs (n=60)	11-19 yrs (n=77*)	(n=187*)
Spouse serving on Active Duty, Army	42.0	40.0	35.1	38.3
Spouse serving on Active Duty, other services	-	1.7	2.6	1.6
Spouse serving in Guard or Reserves, all services	8.0	3.3	6.5	5.9
Spouse separated from service, (Active or Reserve/Guard)	26.0	28.3	37.7	31.4
Spouse has no current or previous military service	24.0	26.7	18.2	22.3

\*These totals do not match Table 4 totals for married nurses due to a single missing observation.

affiliation of spouses. About 38% of the spouses of Active Duty nurses were also serving on Active Duty with the Army. Only about 2% were serving with other services. Close to 6% were currently affiliated with the Guard or Reserves (all services). Spouses who had prior Active or Reserve/Guard service made up 31% of the total, while 22% of the spouses of nurse-respondents had not been affiliated with any of the services.

b. Dual Army couples

Table 10 presents some characteristics of dual Army couples and



indicates the frequency with which such double Army careers appeared among the nurse sample. More than one fourth of the sample of nurses were married to others serving on Active Duty with the Army and these couples made up nearly 45% of the married couples among the nurse-respondents.

Very few of the nurses married to Active Duty Army personnel were male (only about 5%). The average age of spouse for dual Army couples was 33.7 years, somewhat younger than the average age for all spouses (35.0 years, see Table 8). Age of spouse increased with length of service, from 30.6 years for the lowest tenure group to 36.0 years for those with the greatest tenure. Table 10 also indicates that the educational level of Active Army spouses was 17.1 years, higher than the average years of schooling for all spouses of 15.9 years (see Table 8). Years of education was very slightly lower (16.8 years) for the Army spouses of those with 5 through 10 years of service than for those with 0 through 4 years of service (16.9 years).

The paygrade distribution for Active Army spouses of Active Duty Army nurses is described in Table 10. Several nurses (about 13%) were married to enlisted personnel with ranks from E-1 to E-9, and a few to Warrant Officers (almost 10%). Nearly 35% of the spouses of nurse-officers held the ranks of O-3 or O-4 while 13% and almost 10% were in the O-1 and O-2 and the O-5 to O-6 categories, respectively. Table 10 indicates that the paygrade of spouse generally increased with the tenure of the respondent, with the longest LOS group having the greatest proportion of O5s and O6s among spouses.

As shown in Table 10, most Active Duty couples were stationed at the same base (about 93%). Separations during the previous fiscal year averaged 3.3 months. Those with longer tenure were more likely to be stationed together and to have experienced more limited separations in the past year. Periods of

Table 10. Characteristics of dual Army couples,  
Active Duty Army nurses, 1985  
(Number, percent or mean)

	Tenure group			
	I	II	III	
	0-4 yrs	5-10 yrs	11-19 yrs	All
Number of dual military couples	21	29	34	84
Dual military couples as % of all nurses	20.6%	27.4%	27.6%	25.1%
Dual military couples as % of married nurses	45.7%	48.3%	36.0%	44.7%
Age of spouse (yrs.)	30.6	33.9	36.0	33.7
Gender of spouse, % male	90.5%	96.6%	97.1%	95.2%
Average years of education of spouse	16.9	16.8	17.4	17.1
Paygrade of spouse				
E4 to E9	14.3%	17.2%	8.8%	13.1%
W2 to W4	14.3%	3.4%	11.8%	9.5%
O1 to O2	23.8%	10.3%	8.8%	13.1%
O3 to O4	47.6%	62.1%	50.0%	34.5%
O5 to O6	-	6.8%	7.6%	9.5%
Percent of spouse stationed at same base	80.5%	91.7%	96.3%	93.1%
Number of months separated from spouse, 1984	4.0	3.3	2.9	3.3
Number of children accompanying				
None	52.4%	48.3%	41.2%	46.4%
1 child	33.3%	24.1%	26.5%	27.4%
2 children	4.8%	20.7%	26.5%	9.0%
3 or more children	9.5%	6.9%	5.9%	7.1%

spousal separation ranged from 4.0 months to 2.9 months for the three LOS groups. The percentage of dual Army couples at the same location was 91% for the shortest tenure group and about 96% for the group with the greatest length of service.

Some important issues surround the provisions made for the

children of military couples and Table 10 provides useful information on the number of children accompanying dual Army couples. Less than one half (about 46%) of these couples had no children accompanying. About 27% were living with one child, 19% with two children, and a little more than 7% with three or more children. The lowest tenure group had the largest proportion of couples without children accompanying (about 52%) and the group with the most tenure had the highest proportion of couples with one or more accompanying child, (about 59%).

The attitudes of nurses married to spouses serving on Active Duty toward possible long separations from their spouses were investigated in the 1985 DoD Survey. As shown in Table 11, about 56% of the nurse-officers would leave the service themselves under such circumstances, while in about 12% of these cases, the spouse would separate from the service. Nearly 32% of the couples would accept the situation and both would continue in the service. (About 32% of the nurse members of dual Army couples did not answer this question or indicated that it was inappropriate to their situations). The percentage who would leave the Army in the face of a long separation was higher for the group with the least tenure (66.7%) and lowest for those who had served the longest (50.0%).

Respondents were asked to evaluate the extent to which the couple agreed on the career plans of the nurse and those of the spouse. Table 11 presents these responses. The majority agreed either "very well" (68.6%) or "well" (25.7%) on the spouse's career plans. Agreement on the nurse's career plans showed the same very positive pattern with 64.8% agreeing "very well" and 23.9% agreeing "well." The perception of a conflict between Army careers appears to be very limited. Table 11 also indicates that agreement on both spouse and nurse career plans increased with length of service for these couples, probably

Table 11. Attitudes toward separations and career plans of dual Army couples, Active Duty Army nurses, 1985 (percent)

	Tenure group			All (n=84)
	I 0-4 yrs (n=21)	II 5-10 yrs (n=29)	III 11-19 yrs (n=34)	
Response to possible long separations from spouse				
- respondent will leave service	66.7	52.6	50.0	56.1
- spouse will leave service	16.7	10.5	10.0	12.3
- accept separation	16.7	36.8	40.0	31.6
Agreement of couple on spouse's career plans				
- very well	60.0	69.6	74.1	68.6
- well	25.0	26.1	25.9	25.7
- fairly well	10.0	4.3	-	4.3
- not well at all	5.0	-	-	1.4
Agreement of couple on nurse respondent's career plans				
- very well	55.0	66.7	70.4	64.8
- well	25.0	25.0	22.2	23.9
- fairly well	10.0	-	7.4	5.6
- not well at all	10.0	8.3	-	5.6

reflecting the tendency for those who do not agree on career plans to leave the service or it may be easier to agree as the time left to serve grows shorter.

#### 4. Financial characteristics

The financial characteristics of the Active Duty Army nurses included in the 1985 DoD Survey are presented in Table 12. Average total family income for 1984 was \$42,119 for the sample group as a whole. The nurses with the shortest tenure, 0 through 4 years, received an average of \$29,507 in family income in 1984 while Groups II and III, with greater seniority, received \$42,618 and \$52,391, respectively.

Military basic wages of the respondent were also reported for the

Table 12. Financial characteristics of Active Duty  
Army nurses, 1985, by tenure group  
(percent or mean)

	Tenure group			All (n=334)
	I 0-4 yrs (n=105)	II 5-10 yrs (n=106)	III 11-19 yrs (n=123)	
Average total family income, 1984	\$29,507	\$42,618	\$52,391	\$42,119
Average basic military wages, (respondent), 1984	\$16,808	\$25,420	\$31,861	\$25,084
Average basic military wages of respondent as % of average total family income, 1984	57.0%	59.7%	60.8%	59.6%
Average basic allowance for quarters	\$ 259	\$ 316	\$ 204	\$ 308
Average basic allowance for subsistence	\$ 114	\$ 115	\$ 124	\$ 118
Average variable housing allowance	\$ 45	\$ 56	\$ 57	\$ 53
Percent who received special pay	52.4%	52.4%	60.8%	54.4%
Amount of debt (nonmortgage)				
less than \$499	13.6%	19.6%	28.0%	20.8%
\$500 to \$4,999	36.9%	38.3%	30.5%	34.9%
\$5,000 to \$14,999	39.8%	27.4%	8.0%	31.6%
\$15,000 to more	9.7%	14.7%	13.6%	12.7%
Percent living in own home	19.0%	36.8%	52.5%	36.9%

sample and are included in Table 12. For these nurses as a whole, 1984 military wages averaged \$25,084, about 60% of average total family income for the same period. Basic military wages for the group of nurses with the shortest length of service averaged \$16,808, about 57% of total family income. Nurses in Groups II and III earned basic wages of \$25,420 and \$31,861, respectively, and these earnings represented about 60% and 61% of total family income for these cohorts. The contribution of military wages of the nurse respondent to total family income is complicated by the inclusion of both single and married officers in the sample.

In addition to basic wages, military officers are also eligible to receive a basic allowance for quarters (BAQ), a basic allowance for subsistence (BAS), a variable housing allowance, and special pay. Table 12 gives average values for all of these additions to basic wages. BAQ was lowest for Group III (\$204) and highest for Group II (\$316). BAS increased with tenure, ranging from a mean of \$114 for the shortest tenure group to \$124 for the group with the longest service. Variable housing allowance showed a similar tendency to increase with tenure, from an average of \$45 for Group I to \$57 for Group III.

Special pay is a category which incorporates a wide variety of supplements to the basic wages of military personnel. It includes such items as jump pay, flight pay, foreign duty pay, professional pay, and overseas cost of living allowance. Table 12 shows that the majority (54.4%) of those surveyed received at least one type of special pay. About 52% of tenure Groups I and II received special pay and almost 58% of those in Group III found their incomes augmented in this way. The amount of special pay received is not available but has been included in the calculation of total family income.

Table 12 also includes self-reported information on the nonmortgage debt of the nurse-respondents. About 56% of all those surveyed had debts totalling less than \$5,000. The percentage with debts falling in this range was 50.5%, 57.9%, and 58.5% for Groups I, II, and III, respectively.

Since an owner-occupied home frequently represents a substantial portion of a family's net worth, the percent of nurse respondents living in their own homes was included in Table 12. Almost 37% of the nurse sample fell into this category. The majority (52.5%) of nurses with 11 or more years of service lived in their own homes. Only 19% of the shortest tenure group owned the home in which they were living and about 37% of the members of Group II owned their

domiciles. This increase in home ownership with tenure represents a typical lifecycle pattern in the structure of family assets. These figures understate the incidence of home ownership among the sample, however, because many military officers own homes in which they are not currently living. These home owners would not be included in Table 12.

#### 5. Attitudes toward military life and work

A very important group of questionnaire items from the 1985 DoD Survey deals with issues of job satisfaction and perceptions about military life. This information provides a basis for comparison with a body of recent research (See Chapter II) dealing with factors influencing job satisfaction and the relationship of job satisfaction to turnover among civilian nurses.

Table 13 presents evaluations of 18 facets of the working environment for the Active Duty Army nurses included in the sample. The mean values in the body of the table represent the responses made on the basis of a five point scale anchored at one end with "very dissatisfied" and at the opposite end with "very satisfied." The highest average evaluation on this Likert scale representing degree of satisfaction was given to "chance to serve country" (4.20), and the lowest was given to "promotion opportunities" (3.19). Among the group with the shortest tenure, "commissary services" were considered the facet of work yielding the least satisfaction (at 2.12). Those with 5 through 10 years of service gave the lowest evaluation to two factors, "working conditions" and "promotion opportunities" (both 3.11). The nurses with the greatest tenure saw "frequency of moves" and "promotion opportunities" as the least satisfactory characteristics of the job (both 3.23). All three tenure groups evaluated "chance to serve country" as the most satisfactory element of their work (at 4.11, 4.21, and 4.28 for Groups I, II, and III, respectively).

Table 13. Satisfaction with facets of work  
Active Duty Army nurses, 1985, by tenure group  
(mean values\*)

	Tenure group			
	I	II	III	All
	0-4 yrs (n=105)	5-10 yrs (n=106)	11-19 yrs (n=123)	(n=334)
Satisfaction with:				
-personal freedom	2.97	3.25	3.65	3.31
-acquaintances/friendships	3.78	3.86	4.24	3.97
-work group/coworkers	3.59	3.68	4.02	3.77
-assignment stability	3.52	3.47	3.49	3.49
-pay and allowances	3.61	3.75	3.80	3.72
-family environment	3.57	3.47	3.45	3.49
-frequency of moves	3.27	3.46	3.23	3.32
-retirement benefits	3.50	3.59	3.68	3.60
-chance to serve country	4.11	4.21	4.28	4.20
-current job	3.48	3.63	3.78	3.64
-promotion opportunities	3.24	3.11	3.23	3.19
-training/in-service education	3.52	3.46	3.74	3.58
-job security	3.51	3.31	3.93	3.60
-working conditions	3.23	3.11	3.50	3.29
-post service educational benefits (VEAP)	3.12	3.27	3.26	3.22
-medical care	3.67	3.93	3.94	3.85
-dental care	3.57	3.85	3.86	3.77
-commissary services	2.12	3.70	3.80	3.80

\*Note: Responses were reported on a five point scale:

- (1) very dissatisfied,
- (2) dissatisfied,
- (3) neither satisfied/dissatisfied,
- (4) satisfied, and
- (5) very satisfied

Because of the large number of factors evaluated and the interrelatedness of the concepts involved, principal components analysis was used to group these job facets into three dimensions. This procedure produces a weighted component representing each of the dimensions identified. The scores for individual observations on each component may then be used in subsequent multivariate analysis, replacing the original facets. The components identified



are discussed in Chapter IV.

A more global indicator of satisfaction was also available from the survey. Respondents were asked how satisfied they were with military life and they could select a response from a seven point Likert scale which ranged from "very dissatisfied" to "very satisfied," as shown in Table 14. The mean response for all nurses was 5.21. Satisfaction with military life increased with length of service, ranging from an average of 4.80 for tenure Group I to 5.57 for tenure Group III. (Those who were most dissatisfied were, of course, over time likely to have left the service or modified their views as they approached 20 years of service).

Table 14. Satisfaction with military life,  
Active Duty Army nurses, 1985, by tenure group  
(mean\*)

	Tenure group			All (n=334)
	I 0-4 yrs (n=105)	II 5-10 yrs (n=106)	III 11-19 yrs (n=123)	
Satisfaction with military life	4.80	5.20	5.57	5.21

\*Note: Responses were reported on a seven point scale:

- |                                    |                        |
|------------------------------------|------------------------|
| (1) very dissatisfied              | (5) somewhat satisfied |
| (2) dissatisfied                   | (6) satisfied          |
| (3) somewhat dissatisfied          | (7) very satisfied     |
| (4) neither dissatisfied/satisfied |                        |

Table 15 presents responses to questions about perceptions of military life and benefits. Perceptions of the value of benefits associated with a job often provide better insights into the motivations for undertaking and

Table 15. Perceptions of military life and benefits,  
Active Duty Army nurses, 1985, by tenure group  
(mean values\*)

	Tenure group			
	I	II	III	All
	0-4 yrs (n=105)	5-10 yrs (n=104)	11-19 yrs (n=123)	(n=334)
Military life as expected	2.55	2.46	1.98	2.31
Future retirement benefits will not be good as now	2.14	1.73	1.54	1.79
Military pay/benefits will not keep up with inflation	2.46	2.12	1.83	2.13
Family better off if civilian job**	3.03	3.15	3.19	3.13

\* Responses were reported on a five point scale:

- (1) strongly agree,
- (2) agree,
- (3) neither agree nor disagree,
- (4) disagree, and
- (5) strongly disagree.

\*\*Sample size for this question was smaller, since only nurses with a spouse and/or dependents responded.

remaining in a job than do objective measures or evaluations of such benefits.

The degree to which expectations are met is often considered an important determinant of satisfaction with work (See page 14). Nurse respondents were asked to disclose whether or not military life was as they expected it to be. They responded by selecting a value from a five-point Likert scale with "strongly agree" having the lowest value and "strongly disagree" having the highest. Table 15 indicates that the nurse sample as a whole gave an average response to this question of 2.31. Those with the least tenure were most likely to find their expectations not met (a mean of 2.55), while those with the longest tenure were most likely to have found military life as they had anticipated (a

mean of 1.98). Again, this reflects the tendency of those with unmet expectations to leave the service or to adapt their expectations as they continued to serve.

When asked if future retirement benefits were likely to be as good as they are now, those with more years of service were more optimistic, as shown in Table 15. The average response (on the same five point Likert scale with "strongly agree" at the lower end and "strongly disagree" at the upper end) for the nurses surveyed was 1.79. Group I, with the least tenure, averaged 2.14; Group II averaged 1.73; and Group III with the longest tenure, averaged 1.54.

When queried about the prospects for pay and benefits keeping up with inflation, the mean response on this same scale was 2.13. Those with the least time served were the most pessimistic about inflation eroding their income (Group I's mean value was 2.46), while those with the most tenure viewed inflationary effects most optimistically (with an average value of 1.83).

Table 15 includes information on the respondent's feelings about whether or not his or her family could be better off if the respondent were to take a civilian job. The mean response was 3.13 on the same Likert scale described above. Those with longer service were more likely to evaluate their family's well being in the military environment more favorably relative to the civilian employment. The average responses for tenure Groups I, II and III were 3.03, 3.15, and 3.19, respectively. (Only nurses with a spouse and/or dependents answered this question). Those who had served longer were more likely to have grown "comfortable" with the family environment provided by the military and view it more favorably than the less well known civilian alternative. Those who felt the civilian setting was better for their families were likely to have left the service.

## 6. Organizational Commitment

Several questions included in the 1985 DoD Survey of Officers and Enlisted Personnel were designed to reveal the career plans of the respondent. Nurse retention is a very important issue for the Active forces and the willingness of Active Duty nurses to join the Reserves on leaving Active service also plays an essential role for Reserve recruiting.

Table 16 shows the average total years of service an officer intends to have completed when he or she leaves military service. The questionnaire item does not specify Active or Reserve service, and this leads to some difficulties in interpretation. For the entire nurse cohort, the mean total service intended was 17.4 years. As would be expected, intended length of service increased with

Table 16. Organizational commitment of Active Duty  
Army nurses, 1985, by tenure group  
(mean or percent)

	Tenure group			All (n=334)
	I 0-4 yrs (n=105)	II 5-10 yrs (n=106)	III 11-19 yrs (n=123)	
Average total years of service intended	12.4	17.7	21.2	17.4
% intending 20 or more years of service	46.6%	74.3%	96.7%	73.9%
% expecting promotion to next higher paygrade*	66.8%	74.5%	70.7%	70.2%
% expecting promotion to general officer*	13.7%	8.2%	4.1%	6.7%
% intending to join a Guard or Reserve unit**	66.7%	45.3%	14.7%	40.8%

\*These questionnaire items use an 11 point scale from "no chance" to "certain." Values greater than five were considered an indication of positive expectations.

\*\*Responses of "probably yes" and "definitely yes" were considered an indication of positive intention.

tenure, ranging from 12.4 years for Group I to 21.2 years for Group III. More than 70% of the sample planned at least a 20 year career with the Army. Almost all (96.9%) of those with the greatest tenure planned to complete 20 years of service, as would be expected, since these officers had already completed at least half of this period. Those with 5 to 10 years of service were also very likely to be planning a 20 year Army career with 74.5% indicating such an intention. By way of contrast, less than half (46.6%) of the nurses in Group I were career oriented. Stated intentions do not guarantee that the respondents will actually complete the career period. An officer cannot anticipate the family or work conflicts which may lead him or her to consider leaving the service nor can he or she always forecast the civilian opportunities which may draw a nurse toward the civilian sector. In addition, promotion policies and the availability of appropriate billets at the higher paygrades will influence actual (in contrast to planned) career paths in the Army.

About 70% of the nurses surveyed expected to be promoted to the next higher paygrade as shown in Table 16. All the tenure groups had rather high expectations of promotion. The percentages expecting grade advancement for the three length of service groups were 66.8%, 74.5%, and 70.7%, respectively. The proportion of nurse officers expecting promotion to general officer was 6.7% for the entire cohort. This percentage anticipating reaching the highest levels was the greatest for those who had not been in the service long (13.7% for Group I). About 8% of Group II and just over 4% of Group III expected to be promoted to general officer. The pessimism displayed by the more senior nurses may reflect more accurate knowledge of the Army Nurse Corps and their promotion opportunities gained from their greater experience.

Even though a nurse plans to leave Active Duty, he or she may elect

to serve in the Guard or the Reserve. The intention to serve in this capacity represents a commitment to the Army which is of great importance for the goals of total force planning. Table 16 indicates that about 41% of all the nurses surveyed planned to join a Reserve or Guard unit. As discussed in Chapter I, most of the respondents in tenure Group I have a Reserve service obligation. These nurses showed the strongest propensity for Reserve service with 66.7% intending to join. The proportion planning to serve in the Guard or Reserve was 45.3% for those with 5 to 10 years of service, and was only 14.7% for those with 11 or more years served. Almost all of the officers in Group III planned a 20 year career and those who should actually complete this period would not be eligible for Reserve service.

#### 7. Job search

Table 17 presents several measures of job search activity. Only about 12% of the nurses surveyed had looked for a civilian job during the preceding year. Those who had served four years or less were the most likely to

Table 17. Employment search activity,  
Active Duty Army nurses, 1985, by tenure group  
(percent)

	Tenure group			All (n=334)
	I 0-4 yrs (n=105)	II 5-10 yrs (n=106)	III 11-19 yrs (n=123)	
Looked for a civilian job in 1984	21.0	8.6	5.8	11.5
Received civilian job offer in 1984	36.2	34.3	36.4	35.6
Worked at civilian job in 1984	2.9	4.9	4.9	4.2
Very sure of finding good civilian job*	78.1	81.1	75.6	78.1

\*This questionnaire item uses an 11 point scale from "no chance" to "certain." Values greater than eight were considered to indicate being "very sure."

have sought civilian work (21.0%). Some of these short tenure nurses had joined the service during 1984 and so had been in the job market in the year in question. Those with 5 through 10 years of service did not often seek other jobs (8.6%) and the group with 11 or more years of service were even less active in seeking alternative employment (5.8%).

In contrast to the small percentage of Active Duty nurses who sought work in 1984, a much greater proportion received at least one civilian job offer during the same period, as shown in Table 17. Almost 36% of all nurses were the recipients of such offers, and this proportion was very similar for each of the tenure groups (36.2%, 34.3%, and 36.4% for Groups I, II, and III, respectively). This inconsistency between job search and job offers may be partly explained by the great growth in demand for civilian nurses experienced during this period, causing civilian employers to make unsolicited job offers to military nurses. Another partial explanation could lie in the possibility that the respondents may have interpreted very casual inquiries about employment availability as firm job offers.

A very few of the nurses in the sample worked at a second civilian job in 1984. Only 4.2% of all surveyed nurses were so employed, as shown in Table 17. The tenure group with the least service had the lowest proportion of moonlighters, less than 3%. The proportion of second job holders was the same for Groups II and III at 4.9%. This limited participation outside the primary job may reflect the extremely demanding work schedules of Active Duty Army nurses. These nurses have very little time available for additional employment.

The nurse respondents' self-reported likelihood of finding a good civilian job provides a good indication of their perceptions of the civilian labor market. Table 17 reports the percentage of the sample who felt very sure

of finding such employment. More than three-fourths (78.1%) of all the nurses surveyed were very sure of finding a good civilian job. The tenure group showing the greatest confidence in this area were those with 5 to 10 years of service, with 81.1% indicating that they were very sure about their nonmilitary job prospects. The comparable percentages for Groups I and III were 78.1% and 75.6%, respectively. Army nurses appear to be cognizant of the strong demand for their services in the civilian sector.

#### 8. Summary profiles

##### a. A nurse with 0 to 4 years of service

The profile which emerged from the data for an Active Duty Army nurse with four years or less of service was that of a 30 year old white female who had entered the service at age 28 with a bachelors degree. Her father was likely to have a high school education and her mother one year of college. She was an English speaking U.S. citizen, unmarried, and with no dependents.

The rank of this typical nurse was 03, and she was commissioned through direct appointment. She had one to two years of obligated service remaining. She was stationed in the continental U.S. and had been at her present post for 18 months. She had moved twice during her career and was not currently living in base housing.

The average 1984 total family income for this prototypical nurse was almost \$29,000. Her basic military wages for this period were nearly \$16,000. Her BAQ, BAS, and variable housing allowance together added about \$420 to her monthly earnings. In addition, she was likely to have received at least one special pay. The nonmortgage debt for this profiled short-tenure officer fell between \$5,000 and \$15,000. She was not likely to be living in her own home.



Among the facets of her working environment, she found commissary services the least satisfactory and the chance to serve her country the most satisfactory. Personal freedom was rated next to the lowest and acquaintances/friendships next to the highest. Her overall satisfaction with military life was lower than that of those with more tenure and would be labelled "somewhat satisfied" on the questionnaire scale.

The typical nurse in this length of service category did not plan to spend 20 or more years in the Army. She considered her chances of being promoted to the next higher paygrade as about 67%, while her expectations of being promoted to general officer were only about 14%. A nurse in this tenure category was likely to be planning to join a Guard or Reserve unit on leaving Active service.

The job search activities of a junior nurse-officer were quite limited. She was unlikely to have looked for a civilian job or received a civilian job offer. However, she felt very sure of her prospects for finding a good civilian job.

b. A nurse with 5 to 10 years of service

A member of the group of nurses with 5 to 10 years of service was typically female, white, and 33 years old. She had entered the service at age 26 and was currently 33 years old. Her citizenship and educational characteristics were the same as those of tenure Group I profile. Her mother had almost one year of college, while her father had completed high school.

The prototypical Group II nurse was married but had no accompanying children. She was likely to hold the rank of O3 and to have completed her initial obligation at least one year previously. She received her commission through direct appointment and was working as a medical-surgical

nurse. The profiled Group II nurse had moved five times while in the service and had been 20 months at her current CONUS location.

The spouse of the nurse described by this profile was a 34 year old man who had completed four years of college. He was not currently serving on Active Duty with the Army (although this is the tenure group for which the incidence of dual Army couples was the greatest—about 48% of all married couples). They had been married almost ten years.

The family income for the Group II nurse was about \$42,600, of which \$25,400 was comprised of the respondent's basic military wages. Monthly earnings were augmented by almost \$490 in BAS, BAQ, and variable housing allowance, as well as some type of special pay. Debts (nonmortgage) of this typical family were between \$500 and \$5,000. They did not own the home in which they were living at the time of the survey.

Nurses with 5 to 10 years of service expressed the most satisfaction with their chance to serve their country among the facets of work they were asked to evaluate. Medical care was next in providing satisfaction. The change of promotion and working conditions rated equally poorly at the lower end of the scale. The prototypical nurse in this tenure group rated her satisfaction with military life in general as 5.57 on a scale from one to seven. This rating may be interpreted as "somewhat satisfied."

The profiled Group II nurse intended to serve 20 years or more in the military. She was confident about her chances of promotion to the next higher paygrade, but saw her chances of promotion to general as very limited. Her interest in joining the Reserve was about 50-50 (45.3% intended to join).

The typical nurse with 5 to 10 years of service had not looked for a civilian job in 1984, nor had she received any civilian job offers (though

she was much more likely to have been offered a job than to have sought one). However, she evaluated her chances of finding a good civilian job very highly.

c. A nurse with 11 to 19 years of service

A nurse who had been in the Active Army for 11 or more years was typically a white female. She was 37 years old and had entered the Army at age 22. While her current educational level was higher than for other nurses, a masters degree, she began her military career with less than a bachelors degree. Both her parents had completed one year of college. This nurse with considerable service behind her was married and accompanied by at least one child. Her husband was 38 years old and a college graduate. He was not currently serving in the Army.

This profiled Group III officer's rank was 04 and she had no remaining initial obligation. Unlike members of the other two tenure groups, she had not received her commission by direct appointment. She had moved eight times during her career and spent 41 months overseas. She had been serving at her current CONUS location for 24 months as a medical-surgical nurse.

During 1984, the total family income of this long-term nurse was \$52,391. Her basic military wages made up \$31,861 of this. She received an additional \$385 monthly in BAs, BAQ, and variable housing allowance, as well as at least one special pay. Family nonmortgage debt totalled less than \$5,000. This nurse and her family were likely to be living in their own home.

A 20 year military career was planned by this officer. She was confident about being promoted to the next higher rank, but quite pessimistic about her opportunities at the general officer level. She did not plan to join a Reserve unit on leaving Active service. (She would not be eligible for Reserve/Guard service as a retiree).

A nurse in this category with the greatest experience had not sought a civilian job the previous year nor had she been offered a civilian job. She was, however, confident of her ability to obtain good civilian employment.

#### IV. MULTIVARIATE ANALYSIS

##### A. Methodology

In recent years, the desire to analyze survey data has led to the wider application of methods designed to explain the choices an individual makes between two or more qualitative alternatives. The behavioral responses which a questionnaire item offers are frequently qualitative; nurse respondents to the DoD Survey of Officers and Enlisted Personnel, for example, were offered a choice between planning to join and not planning to join a Reserve unit on leaving Active service. Traditional methods of multivariate analysis, such as ordinary least squares regression, are not suitable for use with a qualitative dependent variable (i.e., join/not join).

Qualitative choice models are based on the premise that individuals make choices among alternatives on the basis of individual characteristics and that an equation can be estimated from sample data to assess the relative importance of individual factors taking into account the effect of other variables in the model. The more robust the set of explanatory variables, in general, the more accurate the assessment of the effects of individual factors on the behavior of interest.

The methods available for estimating such equations consider the probability of an individual making a particular choice to be a function of individual attributes but they differ in their assumptions about the probabilistic nature of the decision process. The logit model is based on the cumulative logistic probability function and is an appropriate functional form for this application. The decision to join or not join a Reserve unit on leaving Active service may be characterized as a dichotomous choice, taking the value of

one if the nurse intends to join, and a value of zero if his or her intention is to forgo this opportunity. Each individual nurse is characterized by an outcome defined as:

$$Y_i = 0, \text{ if individual } i \text{ does not intend to join; and} \\ = 1, \text{ if individual } i \text{ intends to join.}$$

The logistic regression model relates the participation decision of the  $i^{\text{th}}$  individual,  $Y_i$ , to a vector of characteristics for that individual,  $x_i$ , and  $e_i$  is a stochastic error term:

$$Y_i = p(x_i) + e_i,$$

where,

$$p(x_i) = P[Y_i=1 \mid x_i]$$

and

$$p(x_i) = \frac{1}{1 + e^{-(B_0 + B_1 x_{i1} + \dots + B_k x_{ik})}}.$$

The number of characteristics associated with each individual is denoted by  $k$  and  $B_0, B_1, \dots, B_k$  are the parameters of the model to be estimated. Because  $p(x_i)$  represents the probability that the  $i^{\text{th}}$  person will make a specified choice,  $B_j$  may be interpreted as the impact of a change in characteristic  $j$  on the log of the odds ratio, holding the other individual characteristics constant.

#### B. Selection of the Dependent Variable

The dependent variable, Reserve intentions, was derived from the response to the question "When you finally leave the military, do you plan to join a National Guard or Reserve unit?" Respondents chose among five possible responses:

definitely yes,  
probably yes,

don't know,  
probably not,  
definitely no.

Responses of "definitely yes" and "probably yes" were given a value of one for Reserve intentions. Those who responded otherwise were assigned a value of zero for the dependent variable. The "don't know" responses were grouped with the negative intentions in order to restrict the positive intentions group to those with a firm plan to serve with a Reserve unit.

### C. Candidate Explanatory Variables

Candidate explanatory variables for this model were selected from the survey responses of Active Duty Army nurses on the basis of the literature dealing with nurse labor force participation, second job holding, and employment turnover. These candidate factors were grouped into the following categories:

Demographic information,  
Military experience,  
Cognitive/perceptual orientation,  
Economic incentives,  
Perceptions of employment opportunities.

Sample size considerations and questions of multicollinearity influenced the final choice of explanatory variables included in the models. Several questionnaire items were omitted because they were answered by an insufficient proportion of respondents. Table 18 presents a listing of candidate variables and their values.

#### 1. Demographic variables

The demographic variables included in the logistic regression portion of this study were race, gender, level of education, family status, and number of dependents. The small size of the subgroups to be analyzed limited the number of candidate variables which could be included. Several interesting factors such as

Table 18. Candidate explanatory variables,  
Active Duty Army nurses, 1985

<u>Variable</u>	<u>Description</u>
<u>Demographic</u>	
Race	White (0); nonwhite (1)
Gender	Female (0); male (1)
Education	Bachelors degree (0); Masters or Doctoral degree (1)
Family status	Single with no dependents; single with one or more dependents; married with no dependents; married with one or more dependents
Number of dependents	Minimum=0; maximum=7
<u>Military Experience</u>	
Nursing specialty	Operating room nurse or nurse anesthetist (1); other (0)
Advancement rate	Paygrade divided by years of service
<u>Economic Incentives</u>	
Income	Total family income, 1984 divided by 1,000
Debt (nonmortgage)	\$0-\$4,999 (0); \$5,000 or more (1)
<u>Cognitive/Perceptual Orientation</u>	
Satisfaction with work	Principle component: Satisfaction with coworkers; satisfaction with current job; satisfaction with personal freedom; satisfaction with friendships; satisfaction with working conditions; satisfaction with chance to serve country
Satisfaction with benefits	Principle component: Satisfaction with medical benefits; satisfaction with dental benefits; satisfaction with retirement; satisfaction with VEAP; satisfaction with pay; satisfaction with commissary; satisfaction with training
Satisfaction with stability and opportunity	Principle component: Satisfaction with frequency of moves; satisfaction with assignment stability; satisfaction with family environment; satisfaction with promotion opportunities; satisfaction with job security
<u>Civilian Opportunity</u>	
Perception of civilian employment opportunities	Very sure of finding good civilian job (0); <u>not</u> very sure of finding good civilian job (1)



parental educational level could not be included for this reason. Age at entry and current age are also absent. Partitioning the data set by tenure group (discussed below) and the inclusion of variables representing experience and tenure make up for this omission to some extent. Problems of collinearity between the age variables and some of the other potential explanatory factors also argued for their exclusion.

The race/ethnicity information included in the survey was restructured as a dummy variable for logit analysis; the two categories were "white" (0) and "nonwhite" (1). It would have been interesting to examine other ethnic distinctions (Black, Hispanic, Asian, etc.) but these groups would have been too small for meaningful analysis.

Current educational level was delineated as a dichotomous variable: the two categories were a Bachelors degree (0) and a Masters or PhD degree (1). There were no nurse respondents with less than a Bachelors degree included in the sample.

Marital status and number of dependents were combined into one variable for two of the analyses. Nurse officers were described by one of these four categories: single with no dependents; single with dependents; married with no dependents; or married with dependents. A respondent was classified as single if he or she had never married or was divorced or widowed. Those who were married for the first time, had remarried, or were separated were considered married. To examine further the important effects of marital status, several models were estimated for subgroups defined on the basis of marital status. In those cases, a variable for number of dependents was used.

## 2. Military background variables

Tenure has been shown to have a strong relationship to turnover,

particularly in the military employment setting. Reserve intentions equations were not estimated for respondents with 11 or more years of service, because of the influence tenure has on their likelihood of remaining on Active service at least to the 20 year point and hence becoming ineligible for Reserve service. Tenure was also used as the basis for partitioning the data set for several of the models specified.

A variable representing the ratio of paygrade to years of service was included as a potential explanatory factor. A greater value for this variable, referred to as advancement rate, implied a more rapid pace for promotion.

Nursing specialty was included as an explanatory variable. Operating room nurses and nurse anesthetists have important roles in the Army health care delivery system and are in limited supply in both the military and the civilian environments. These two specialties were combined and treated as a single dummy variable for the analysis. Other nursing specialty characteristics would have been interesting additions to the analyses, but the need to limit the number of explanatory variables prevented their inclusion.

### 3. Cognitive/perceptual orientation

One of the unique features of the 1985 DoD Survey is the inclusion of a set of questions dealing with the respondent's satisfaction with an extensive group of job characteristics. Turnover literature assigns an important role to the employee's satisfaction with elements of the job in the making of career decisions. Empirical investigations into the factors influencing the career choices of military personnel and of nurses emphasize the importance of job "facet" satisfaction as discussed in Chapter II. A list of the elements of job satisfaction included in the survey appears in Table 18.

The use of all of the facets of job satisfaction available from the

survey would have resulted in overspecification of the logit models. Principal components analysis was utilized to investigate the interrelationships among the cognitive/ perceptual explanatory variables in the survey data. Given an array of correlation coefficients for a set of variables, principal components techniques may be used to reveal an underlying pattern of relationship such that the data may be rearranged into a smaller set of factors or components which may then be used as source variables for further analysis. Virtually no differences in component structure were identified among subpopulations and, as a result, principal components developed at the aggregate level (for all nurses with less than 11 years of service) were used in the development of models below the aggregate level.

Table 18 describes the principal components which were identified for these cognitive/perceptual elements in terms of the variables which load heavily on each component. One dimension consists of factors which indicate how satisfied an individual feels with his or her working environment. A second component emphasizes satisfaction with pecuniary benefits while a third is composed of responses to queries about satisfaction with stability and opportunity. Factor loadings for these three principal components may be found in Appendix B.

#### 4. Economic incentives

Reserve service usually represents a second source of income for an individual. The literature dealing with second job holding indicates that economic incentives play an important role in the decision to "moonlight" (see Chapter II). Total family income for 1984 (the year prior to the survey) was included among the candidate explanatory variables. This measure was self-reported and the questionnaire items dealing with total income were not answered

in many cases. Total family income was used for several of the logit analyses in this study when its inclusion did not diminish subgroup sample size unduly. An alternative income indicator, military wages, was considered but rejected because income provided by a spouse was a major element of total family earnings for many of the nurses in the sample and also because it serves as a proxy for rank and would be misleading in this context.

Nonmortgage debt for 1984 was the second economic incentive variable included in the analysis. The questionnaire item dealing with debt provided for ordinal responses rather than precise dollar amounts. The responses were restructured to yield a dichotomous variable: one category was "\$4,999 or less" (0), and the other was "\$5,000 or more" (1).

#### 5. Perceptions of employment opportunities

As discussed in Chapter III, Active Duty Army nurses included in the nurse sample appear to perceive their strong position relative to the civilian labor market. Several of the questions dealing with employment opportunities and job search activity did not exhibit adequate variation for inclusion in the analysis. A questionnaire item asking "If you left the Service now and tried to find a civilian job, how likely would you be to find a good civilian job?" was selected to represent perceived civilian employment opportunities. Responses were measured on an 11 point scale ranging from "no chance" to "certain." A dichotomous variable was constructed from these responses with zero through seven values on the original scale recorded as one (1) for "not very sure" and values of seven through 11 recorded as zero (0) for "very sure."

#### D. Analytical Subgroups

Tenure plays an important role in career decisions, particularly for

military servicemembers. As previously discussed, nurses with 11 or more years of service were not included in the multivariate analysis. Separate models were estimated for those with 0 through 4 years of service (Group I) and those with five through 10 years of service (Group II). Table 19 presents the Reserve intentions of both of these groups.

Table 19. Reserve intentions by tenure group, Active Duty Army nurses, 1985 (number and percent)

Reserve intentions	Tenure group	
	I	II
	0-4 years (n=76)	5-10 years (n=88)
Intend to join	31 (40.8)	55 (62.5)
Do not intend to join	45 (59.2)	33 (37.5)

Military family issues were a major focus of the 1985 DoD Survey of Officers and Enlisted Personnel. In an attempt to capture some of these family effects, the nurse sample was partitioned by marital status into married (married first time, remarried, and separated) and single (never married, divorced, widowed) categories for analysis. A model was also estimated for a group of officers who were members of dual Army couples (married to other Active Duty Army officers or enlisted personnel). This last group was quite small (44 usable observations). Table 20 presents the Reserve intentions of these three marital status groups.

#### E. Model Results

The results of the logit models developed to predict the Reserve intentions of the five subgroups discussed above are presented in detail in

Table 20. Reserve intentions by marital status group,  
Active Duty Army nurses, 1985 (number and percent)

Reserve intentions	Marital status		
	Single (n=93)	Married (n=95)	Dual Army couple (n=44)
Intend to join	57 (61.3)	44 (46.3)	22 (50.0)
Do not intend to join	36 (38.7)	51 (53.7)	22 (50.0)

Appendix C. Classification tables for these models are included in Appendix D.

1. Reference individual methodology

A list of significant beta values for a logit equation does not provide the kinds of information about the partial effects of individual explanatory variables which would be useful for policy analysis. In order to evaluate the roles of individual factors in this multivariate context, an indirect approach was utilized. The Reserve intention of a reference individual was first calculated (i.e., the individual characteristics of a prototypical Army nurse for each subpopulation were substituted into the appropriate logit model and the resulting likelihood of intending to join a Reserve or Guard unit was predicted). The next step involved calculating the change in intention to join for a member who differed from the reference individual on a single characteristic, holding all other characteristics constant. This method provides a means for focussing on the role of each candidate variable in turn, while retaining the multivariate aspect of the analysis.

The probability of intending to join the Reserves was calculated for the reference individual at the mean values for continuous explanatory variables and with the appropriate value (zero or one) for dichotomous explanatory

variables. Table 21 lists the characteristics of the reference individual for each of the five subpopulations analyzed. Tables 22 and 23 show the effects on Reserve intentions of altering a single individual attribute while retaining all other characteristics of the reference individual. Continuous variables, except for the cognitive/perceptual principal components, were altered by substituting a value 10 percent greater than the mean value. Principal component values were increased by one standard deviation to measure their potential effects. The effects of dichotomous variables were determined by evaluating the logit equation at the alternative value for these variables.

## 2. Tenure group subpopulation models

As indicated in Table 22, the effect of being nonwhite on Reserve intentions was negative for both tenure groups, with the probability of planning to join falling by two percent and 17 percent for tenure Groups I and II, respectively. This variable was not statistically significant for either those with 0 through four years of service or those with five through 11 years of service.

Male nurses were less likely to anticipate Reserve service than were females. Those males in tenure Group I were nine percent less likely to plan to join while the male nurses in tenure Group II were more than 30 percent less likely to join. The coefficient for gender was significant at the .05 level.

The effects of marital and dependent status were quite different for the two tenure groups. Being single with dependents resulted in a tenure Group I nurse being four percent more likely to join the Reserves than a single nurse with no dependents. The same characteristic decreased the chances of a Group II nurse intending to join by three percent from what it would have been for a married nurse without dependents. The single with dependents variable was not

Table 21. Reference individual characteristics, logit analysis, Active Duty Army nurses, 1985

<u>Variable</u>	<u>Base case values</u>
Race	White
Gender	Female
Family status <sup>a</sup>	Single no dependents <sup>b</sup>
Number of dependents <sup>c</sup>	Mean value
Education	Bachelor's degree
Nursing specialty	Other than nurse anesthetist or operating room nurse
Advancement rate	Mean value
Income	Mean value
Debt	<\$5,000
Civilian opportunity	Very sure of good job
Satisfaction with work	Mean value
Satisfaction with benefits	Mean value
Satisfaction with security/ opportunity	Mean value

<sup>a</sup> Applicable only for marital status group models

<sup>b</sup> For tenure Group II (5-11 years of service), reference individual is married with no dependents.

<sup>c</sup> Applicable only for tenure group models



Table 22. Effects of individual variables on the Reserve intentions of Active Duty Army nurses, 1985, by tenure group

<u>Base Case</u>	Tenure Group	
	I 0-4 yrs	II 5-10 yrs
<u>Variable</u> (altered value)		
Race (nonwhite)	-.02	-.17
Gender (male)	-.09	-.34*
Single with dependents (yes)	.04	-.03
Married no dependents (yes)	-.59*	<sup>a</sup>
Married with dependents (yes)	-.19	.12
Education (advanced degree)	-.03	-.02
Nursing specialty (OR or NA)	-.02	.13
Advancement rate (+ 10%)	-.02	.17
Income (+ 10%)	.01	.11
Debt (>\$5,000)	-.10	-.26*
Civilian opportunity (not confident)	.05	-.12
Satisfaction with work (+ 1 s.d.)	.02*	-.001
Satisfaction with benefits (+ 1 s.d.)	.01	-.02*
Satisfaction with stability/opportunity (+ 1 s.d.)	.02	.001
Predicted probability for base case	.77	.51

\* Significant at the .10 level

<sup>a</sup> Reference individual for tenure group 5-10 years was married with no dependents

significant at the .10 level for either tenure group. Married nurses with no dependents who had served less than five years were much less (almost 60 percent) likely to intend to join a Reserve or Guard unit than a single nurse without dependents. The married with no dependents variable was significant at the .10 level only for tenure Group I. The effect on Reserve intention of being married with dependents (as opposed to single with no dependents) was negative (by 19 percent) for Group I. For Group II, those who were married with dependents were 12 percent more likely to intend to join than those who were married but without dependents. The married with dependents variable was not significant at the .10

level for either tenure group.

Holding a Masters degree or a PhD degree decreased the likelihood of a nurse planning to join the Reserves by three percent for those nurses with 0 through 4 years of service and by two percent for those with 5 through 10 years of service. This education variable was not significant for either tenure group.

The nursing specialty variable indicated whether or not the respondent served as either an operating room nurse or a nurse anesthetist. Nurses who held these classifications had a lower probability of intending to join the Reserves if they had served less than five years (a two percent decrease) but a higher probability if they had served for five or more years (a 13 percent increase). In neither case was the specialty factor revealed to be significant.

Advancement rate (paygrade/years of service) had a negative effect on the chance that a nurse would intend to join the Reserves if he or she were in tenure Group I (a decline of two percent) but a positive effect for tenure Group II (an increase of 17 percent). It seems reasonable that the more successful servicemember would see the Reserves in a more positive light but this also implies that the more successful nurse did not plan to remain on Active service for 20 years. The logistic regression coefficient for advancement rate was not significant for either tenure group.

Those in tenure Group I who had total family incomes 10 percent above the mean were estimated to be one percent less likely to include the Reserves in their career plans. Members of tenure Group II showed a larger negative response (over 10 percent) to the same percentage increase in income. Those with \$5,000 or more of nonmortgage debt were 10 percent less likely to intend to join the Reserves if they had been in the service less than five years. For those with

five through 11 years of service, the negative effect amounted to 26 percent. Only in this last case was the logistic regression coefficient significant at the .10 level.

The effects of the principal components which represented three dimensions of satisfaction with military work and life are presented in Table 22. An increase in satisfaction with work had a positive influence on the probability of planning to serve in the Reserves for those with less than 5 years of service (a two percent increase). Nurses who had served five through 10 years were only very slightly influenced in a negative direction (.1 percent). The influence of satisfaction with work was significant for tenure Group I at the .10 level. Satisfaction with benefits, the second principal component, also had a positive role for tenure Group I (a one percent increase), and a negative role for tenure Group II (a two percent decline). The coefficient for satisfaction with benefits was significant for tenure Group II. Satisfaction with stability/opportunity was not a significant variable for either model. This last principal component had a positive influence on Reserve intentions for both tenure groups (two percent for Group I and .1 percent for Group II).

The respondent's perception of the employment opportunities available in the civilian sector had different effects for the two tenure groups. Those with more limited service were more likely (five percent) to plan to join the Reserves if they were not very sure about their civilian employment prospects. The opposite was true for those with five or more years of service. This group was less inclined (two percent) to plan Reserve service if they were not very confident about alternative employment.

### 3. Marital status subpopulation models

Table 23 describes the effects of varying the individual

characteristics which define the reference individual for single nurses, married

Table 23. Effects of individual variables on the Reserve intentions of Active Duty Army nurses, 1985, by marital status group

<u>Base Case</u> <u>Variable</u> (alternative value)	Marital Status Group		
	Single (n=93)	Married (n=95)	Dual Army Couple (n=44)
Race (nonwhite)	.02	.15	b
Gender (male)	a	-.24*	b
Dependents (+ 1)	.08	.02	.17*
Education (advanced degree)	-.17*	-.06	b
Nursing specialty (OR or NA)	a	-.22	b
Promotion rate (+ 10%)	-.03*	-.22	.02
Debt (more than \$5,000)	-.06	-.20*	-.22
Civilian opportunity (not confident)	.12	-.12	b
Satisfaction with work (+ 1 s.d.)	-.001	.0001	.003*
Satisfaction with benefits (+ 1 s.d.)	-.003	-.003*	-.01*
Satisfaction with stability and opportunity (+ 1 s.d.)	.0001	-.0009	-.002
Predicted probability for base case	.30	.29	.48

\* Significant at the .10 level

a Variable did not exhibit adequate variation for inclusion in the model

b Variable not included in order to conserve degrees of freedom

nurses, and nurse-members of dual military couples. The set of candidate explanatory variables differed slightly from that used for the tenure group subpopulations. Some variables were inappropriate. The family status characteristics, for example, did not apply once the data had been partitioned by marital status. Other variables had missing values for many cases, (income for example) and still others showed too little variation (gender, for example) to be useful for all three models.

The effects on predicted Reserve intentions of being nonwhite were

positive for both married and single nurses. The variable defining race exhibited very limited variation across the dual Army couple data and was not included in that model. Nonwhite single nurses were two percent more likely than white nurses to be planning Reserve service. Married nonwhite nurses were 15 percent more likely than married white nurses to have similar plans. The coefficient of the dichotomous variable for race was not significant for either the single or married models.

Male married nurses were less likely than female married nurses to show an inclination toward Reserve service. The probability of intending to join was 24 percent greater than for the married reference individual. The variable for gender did not show sufficient variation across the data for single nurses to be included in the final model. Gender was not included as a candidate explanatory variable for dual Army couple members due to the small number of males in the sample as well as the need to preserve degrees of freedom.

An increase in the number of dependents resulted in a greater probability of intended Reserve service for all three marital status groups. A single nurse with one percent more dependents than the average for single nurses was 8 percent more likely to plan serving with a Reserve or Guard unit. The effect for married nurses was a two percent increase while it was 17 percent greater for dual Army couple members. For the number of dependents, only the logistic regression coefficient for dual Army couple members was significant at the .10 level.

Holding an educational degree above the Baccalaureate level had a negative influence on plans for Reserve participation for both married and single nurses. Single nurses with a Masters or PhD degree were 17 percent less likely than the single reference individual to intend Reserve service, a difference

significant at the .10 level. A married nurse with an advanced degree had a six percent lower probability of joining. Educational level was not used in estimating the dual Army couple model in an effort to limit the number of variables relative to sample size.

Nursing specialty was usable only for the married nurse model. Designation as a nurse anesthetist or an operating room nurse diminished the probability of planning to serve with a Reserve unit by 22 percent for married nurses. The logistic regression coefficient for this variable was not significant at the .01 level.

Single nurses whose advancement rate was 10 percent greater than the average were three percent less likely to plan to serve with the Reserves than the single reference individual. The logistic regression coefficient for advancement rate was significant at the .10 level for the single nurse model but not for either the married or dual Army couple models. A 10 percent increase in advancement rate for married nurses resulting in a 22 percent lower predicted level of Reserve intentions while the same percentage change in advancement rate was associated with an increase of two percent in the estimate of Reserve intentions for dual Army couple members.

Nonmortgage debt of \$5,000 or more reduced the probability of planning to join the Reserves for all of the marital status models. The decline in Reserve intentions was six percent, 22 percent, and 20 percent for the single, married, and dual Army couple groups, respectively. The logistic regression coefficient for the debt variable was significant at the .10 level only for the married model.

A lack of confidence in the availability of civilian job opportunities was associated with a greater tendency to plan for Reserve service

among single nurses (12 percent increase) while insecurity about alternative job prospects led to a decrease in Reserve intentions among married nurses (12 percent decline). The logistic regression coefficient for this variable was not significant for either the single or the married model above. Civilian opportunity was not included as an explanatory variable for the dual Army couple model.

The mean score for each of the three principal components representing dimensions of satisfaction with military life and work was increased by one standard deviation and the probability of intending to join the Reserves was reestimated for each model on this basis. An increase in satisfaction with work resulted in a decrease in Reserve intentions of .1 percent for single nurses, an increase of less than .1 percent for married nurses, and an increase of .3 percent for dual Army couple members. Among these, only the coefficient for dual Army couples was significant at the .10 level.

Greater satisfaction with benefits was associated with decreased Reserve intentions for all three marital status groups; the probability of planning to serve in the Reserves fell by .3 percent for both married and single nurses and by one percent for dual Army couples. The coefficients for married and dual Army couple nurses were significant ( $p < .10$ ). Satisfaction with security and opportunity had a positive impact on the Reserve intentions of single nurses (less than .1 percent) and a negative impact on those of married and dual Army couple nurses (.1 percent and .2 percent, respectively). None of the coefficients for the third principal component were significant and the .10 level.

4. Summary and evaluation of candidate explanatory variables
  - a. demographic variables

Among the candidate demographic variables, race was not a significant factor in explaining Reserve intentions for any of the models. Male nurses were significantly less likely to join the Reserves for the married nurse model and for the model for those with five through 10 years of service. The turnover literature suggests that men, especially married men, may be less likely to leave their current job (i.e., Active Duty) than women and this may account for their weaker interest in the Reserves.

When tenure groups are considered, family status had significant implications for those with less than five years of service. Among this group, those who were married but without dependents were significantly less interested in Reserve service. Muchinsky and Morrow (1980) point out that the availability of alternative income sources tends to have a positive relationship to turnover and this may explain a tendency for these nurses in two income households to leave Active service. Their aversion to Reserve service might also be explained by the existence of alternative sources of income, since pecuniary considerations have a strong role in the economic theories of second job holding (Rostker and Sishko, 1973).

When subpopulations selected on the basis of marital status were considered, the number of dependents was significant only for nurses who were members of dual Army couples. For these nurses a larger number of dependents was associated with a greater likelihood of joining the Reserves. Family considerations tend to have mixed effects on turnover and moonlighting in the relevant literature. The need for additional financial resources to support a larger family is in conflict with the demands of the family for the potential second job holder's leisure time,.

Level of education was a significant factor influencing the



Reserve intentions of single nurses. Advanced degree holders among this group were less likely to anticipate serving with a Reserve or Guard unit. The sign of the coefficient for education was negative for all groups. Several empirical studies have found education to be negatively correlated with turnover. It has been suggested that better educated servicemembers have more civilian opportunities. There is a strong demand in the civilian sector for nurses with advanced degrees (See Chapter II).

b. military experience

The effect of classification as a nurse anesthetist or an operating room nurse on the probability of joining a Reserve unit was not significant for any of the models considered. Both these nursing specialties are much sought after in the civilian and military health care environments. This characteristic would be expected to have an influence similar to that of educational level. The coefficient for nursing specialty was negative for tenure Group I and for married nurses, as anticipated, but was positive for tenure Group II.

Advancement rate had a significantly negative impact on the Reserve intentions of single nurse officers. Again, the factors which influence turnover (from Active Duty) may be at odds with the incentives to remain affiliated with the military and serve on a part-time basis in the Reserves. An officer who is advancing rapidly is likely to consider his or her chances of serving 20 years to be good. A "successful" Active Duty nurse may be a superior candidate for civilian employment and leave Active service in response to these options.

c. Cognitive/perceptual orientation

As discussed in Chapter II, behavioral approaches to the

turnover issue focus on the employee's perception and evaluation of the characteristics of his or her working environment. Nurse-specific studies also emphasize aspects of job satisfaction as important determinants of labor force participation and retention among nurses.

The principal component representing satisfaction with work was significant for those with 0 through 4 years of service and for members of dual Army couples. The sign of this variable was positive for these two groups but sign was not consistent for the other models.

Satisfaction with benefits was significant for married respondents, for members of dual Army couples, and for those with 5 through 10 years of service. The importance of pecuniary factors for older nurses and for those with more family responsibilities seems reasonable. The sign of the satisfaction with benefits variable was negative for these three models, indicating that the more pleased with monetary benefits a nurse was, the less likely he or she was to plan on joining the Reserves. Again, this may indicate that these satisfied nurses intend to remain on Active Duty.

Satisfaction with stability and opportunity was not a significant factor for any of the models estimated. The profiles presented in Chapter III indicate that the nurse respondents were not subject to frequent moves or family separation and most perceived their opportunities for advancement in the military to be good.

#### d. Economic incentives

Total family income was not significant for either of the tenure group models. While economic incentives are emphasized in the second job holding literature, several empirical studies of Reserve participation assign a minor role to the additional income obtained from Reserve pay, pointing out the small

increment which remains after taxes (see Chapter II). The sign of the coefficient for total family income was positive for both tenure groups. This is difficult to explain (greater income would seem to imply a smaller need for augmentation through moonlighting), but could reflect the desire to maintain a high standard of living on leaving Active service, or the financial means to leave full time work and go to a part time employment status.

Nonmortgage debt was associated with a decline in the desire to participate in the Reserves for all of the models (excepting the dual Army couple model where it was not used). This factor was significant only for the tenure Group II model. The same reasoning suggested for total income should apply here; greater debt should influence the respondent to consider a second job. In this case, however, those with greater debt may be motivated to stay on Active duty to avoid the greater risk of financial reversals in the civilian sector.

e. Perceived civilian opportunity

A lack of confidence about finding a good civilian job did not have a significant influence on plans to join the Reserves for any of the models. The sign of the coefficient for this variable was negative for married nurses and those with 5 through 10 years of service, while it was positive for single nurses and those with less than five years of service. Insecurity about job prospects would be expected to motivate a nurse to stay on Active Duty (and not join the Reserves). On the other hand, such insecurity on the part of a nurse who has already decided to leave Active service might well motivate him or her to plan to "fall back" on Reserve income if a good job fails to materialize.

## V. CONCLUSIONS AND RECOMMENDATIONS

### A. Summary and Conclusions

Data from the 1985 DoD Survey of Officers and Enlisted Personnel were used to investigate the factors influencing the Reserve intentions of Active Duty Army nurses. There were 334 Army nurses included in the survey who were appropriate to this study, and these respondents were divided into three tenure groups: Group I with 0 through 4 years of service; Group II with 5 through ten years of service; and Group III with 11 through 19 years served. Profiles were constructed for each of these tenure groups.

#### 1. Nurse profiles

A nurse with less than 5 years of experience showed the strongest intention to serve in the Reserves (67 percent). She was 30 years old and had entered Active Duty service at 28 with a bachelor's degree (which was still her highest degree). Her rank was 03 and she had 1 to 2 years of obligated service remaining. She was white, unmarried, and without dependents. Her total family income for 1984 was about \$29,500. Among the facets of her working environment she found commissary services and personal freedom the least satisfactory and rated the chance to serve her country and acquaintances/friendships as the most satisfactory. She had not looked for a civilian job but felt confident of her chances of finding a good one.

A nurse with 5 through 11 years of service was less likely to be planning to serve in the Reserves (45 percent) and more likely to be planning a 20 year career on Active Duty. Her paygrade was 03 and she did not have remaining obligated service. She was 33 years old and began Active service at age 26 with a bachelor's degree, which was still her highest degree. This prototypical nurse was married but had no accompanying children. Her spouse was

not serving on Active Duty with the Army (though 48 percent of the spouses for this tenure group were in the Army). Her total family income for 1984 was about \$42,600. She found the chance to serve her country and medical care the two most satisfactory aspects of her military job while considering the chance for promotion and working conditions to be the least satisfactory. She had not looked for an alternative job but was confident about her prospects.

A nurse who had been on Active Duty for 11 or more years was unlikely to plan on serving in the Reserves (15 percent). She was a white female who had entered the service at age 22 and was currently 37 years old. Her rank was 04. She entered the Army with less than a bachelors degree but now held a masters degree. She was married and had at least one accompanying child. Her spouse was not serving on Active Duty with the Army. Her 1984 total family income was about \$52,400. This nurse found the chance to serve her county and acquaintances/friendships to be the most satisfactory elements of her job and rated promotion opportunities and post-service educational benefits as the least satisfactory. She had not sought a civilian job in the preceding year but considered her chances of finding a good job to be very good.

These profiles provide portraits of three very different individuals, though they have a good deal more in common than would be anticipated given their tenure differences. The degree of age compression over the entire sample is notable: the span of average ages for the three tenure groups is only 8 years. The difference in entry age explains this closeness in current age: the nurses with the most tenure joined the Army at a much earlier age, before they had acquired a BSN degree. In terms of marital status, the three groups show a typical "lifecycle" progression which belies their similarity in age, i.e. single without children; married without children; and married with children.

The model paygrade for the three tenure groups ranges from 03 to 05 and the most common rank for those with 5 through 10 years of service is the same as that for the nurses with 11 or more years of service. Financially, they differ considerably by tenure group, with a range for average family income of almost \$23,000. All three prototypical nurses found the opportunity to serve their county to be a very satisfactory element of their work, while they displayed great diversity in their evaluations of other elements of military life and work. The two more senior groups, however, agreed on promotion opportunities as a source of relative dissatisfaction.

While these nurse officers indicate a declining interest in the Reserves as tenure increases, these differences are not as great as might be expected, perhaps because they are so much contemporaries. All three tenure groups show an awareness of civilian opportunities as well as a high regard for the patriotic and social interaction elements of Army service. These factors together may explain their positive attitudes toward the Reserves.

## 2. Multivariate analysis

Logistic regression was used to investigate the effects of a group of characteristics on the intentions of an Active Duty Army nurse to join the Reserves. A multivariate approach provides a means for assessing the joint effects of the many factors which the descriptive approach indicates may have an influence on this decision. The decision to join or not to join the Reserves was viewed as a dichotomous choice and a logit model was estimated to predict the likelihood that an individual nurse with particular individual attributes would indicate an intention to join the Reserves.

Models were estimated for two population subgroups based on tenure and for three subgroupings based on family status. Only nurses with 10 years or

less of service were included in the analysis, since those with greater tenure had completed at least half of a 20 year career and were much less likely to leave Active Duty and join the Reserves. The tenure groups were comprised of those with 0 through 4 years of service (tenure Group I) and those with 5 through 10 years of service (tenure Group II). Marital Status cohorts consisted of single nurses, married nurses, and nurse-members of dual Army couples.

Candidate explanatory variables were selected from among five categories: demographic information; military experience; cognitive/perceptual orientation; economic incentives, and perceptions of employment opportunities. Principal components were constructed to measure three distinct dimensions identified among the cognitive/perceptual orientation variables.

a. Tenure Group I (0 - 4 years of service)

Nurses with 4 or fewer years of service were significantly influenced (.10 level) by family status: Those who were married with no dependents were nearly sixty percent less likely to intend to join the Reserves than their unmarried counterparts without children. The proportion of this tenure group who were married increased from one third to almost one half when entry and current marital statuses are compared. Since most of these short tenure nurses did not plan to complete 20 years on Active Duty, it is likely that they planned to dissociate themselves completely from the Army and their relatively newly acquired family obligations have influenced this decision strongly.

Satisfaction with elements of the working environment also had a significant effect on Reserve plans for those with less than 5 years of service: increased satisfaction was associated with an increase in predicted Reserve intentions. The elements which loaded most heavily on this component were satisfaction with coworkers, satisfaction with the job, and satisfaction

with personal freedom. The lack of impact for the components related to financial benefits and to stability and opportunity also seem appropriate for those who are younger and have fewer family obligations .

b. Tenure Group II (5 - 10 years of service)

Gender was a significant factor in explaining the Reserve service plans of Active Duty Army nurses with 5 through 10 years of service. A male nurse officer was 34 percent less likely to intend Reserve service than a female nurse with the same attributes. The literature on turnover in the military indicates that men are more likely to remain in the service until retirement and this is compatible with negative Reserve intentions.

Two other variables were significant at the .10 level for this tenure group and both of these reflected pecuniary concerns. Those who had nonmortgage debt of greater than \$5,000 were 26 percent less likely than a nurse similar in all other respects to plan on joining a Reserve unit. Satisfaction with benefits had a negative relationship with Reserve intentions as well. The principal component which was used to capture the benefits dimension was weighted heavily by satisfaction with medical, dental, educational, and retirement benefits. Those nurses with positive perceptions of benefits offered by the Army would be expected to remain on Active Duty.

c. Single nurses

For single nurses, educational level had a significant (.10 level) effect on plans for Reserve service. A nurse with an advanced degree was 17 percent less likely to include the Reserves in his or her career plans than a nurse with A BSN who differed only on this one characteristic. Education has been found to be associated with a higher level of turnover in several empirical studies of retention. Advancement rate was also significant at the same level



for unmarried nurses. The more rapidly an officer advanced, the less likely he or she was to be planning to serve in the Reserves. "Successful" officers may be more strongly motivated to stay on Active Duty.

d. Married nurses

Gender was strongly related to the likelihood of joining the Reserves for married nurses. A male nurse in this group who differed from the reference individual only on the basis of gender was 24 percent less likely to intend Reserve service. Financial considerations were also important influences on the Reserve plans of married nurses, with debt of \$5,000 or more and the principal component for benefits significant at the .10 level. Both of these monetary variables had a negative influence on Reserve intentions. These results are very similar to those for tenure Group II nurses and this understandable since 48 percent of the officers with 5 through 10 years of service were married. The family responsibilities of these individuals who perceive the pecuniary benefits of Active service as satisfactory are likely to keep them on Active Duty.

e. Dual Army couples

The sample of members of dual Army couples was very small and the results of the model developed for them should be viewed cautiously. Nonetheless, they constitute a very interesting subgroup. Because of the limited size of cohort, the number of candidate explanatory variables was smaller for this model than for the others estimated. Number of dependents was a significantly positive influence on Reserve intentions. The principal components for satisfaction with work and for satisfaction with benefits were both significant at the .10 level. Satisfaction with work positively influenced Reserve intentions while satisfaction with benefits had a negative effect. Both

members of these couples worked at a military job and the influence of job-related factors on the family may be heightened under such circumstances.

## B. Recommendations

### 1. Policy implications

Active service provides a very important source of RNs for the Reserves. Factors which positively influence Active Duty nurses in forming plans for Reserve service are frequently overlooked by those planning Reserve recruiting strategy. A major difficulty in seeking to implement programs which will make Active Duty officers look favorably on the Reserves is that some of these same programs also tend increase their satisfaction with Active service and encourage them to remain in their current Active status. This effect should not be viewed as a problem but rather as a benefit for Total Force Planning.

Satisfaction with work was identified in this study as an important determinant of an Active Duty nurse's attitude toward the Reserves (Tenure Group I and dual Army couples). Policy approaches to limited nurse availability which emphasize either decreasing the demand for the services of RNs or which involve substituting nonRN personnel in providing health care services are likely to improve the level of satisfaction with elements of the working environment.

The Army Health Services Command has recognized that many nonnursing tasks are performed by RNs because of limited support staff in such areas as: laboratory, nutrition, respiratory care, physical therapy, housekeeping, electrocardiography, pharmacy, logistics, and transportation (U.S.Army, 1988). More appropriate use of the special expertise of nurses would increase the satisfaction which Army nurses derive from their work and encourage interest in both Active and Reserve service.

Numerous policies to decrease the requirements for health care services have been suggested. The provision of a larger proportion of emergency mobilization health care services by host countries has been suggested as well as the contracting out of more health services (Seevers, 1988). The development of a civilian-military contingency hospital system has also been put forward as a means to reduce Reserve nurse (and other health care provider) requirements. To the extent that such approaches reduce the severe strain under which Army nurses are currently working, Army nursing will be seen as a more viable career option.

The perception of Reserve working conditions must also be positive if Active Duty nurses are to consider the Reserve option. Greater flexibility in the scope of drill activities for nurses has been suggested as a means to make Reserve participation more attractive to potential entrants. Knowledge that the Reserves provide meaningful drill activity and the opportunity to acquire and maintain skills would provide an incentive to join for Active Duty nurses who value working conditions highly.

Monetary benefits were an important influence on Reserve plans for married nurses and for tenure Group II nurses in this study. Pay, medical, dental, retirement and educational benefits are widely considered important attractions of Reserve service. While augmenting these benefits for Active Duty nurses would tend to keep these nurses on Active service rather than encouraging them to join the Reserves, those who have made the decision to leave Active service are likely to be positively motivated to join the Reserves by augmented Reserve benefits.

The important role of gender in the determination of Reserve propensity for married nurses and for tenure Group II nurses indicates that male nurses in these categories are not positively inclined toward Reserve service.

This strong rejection by more senior male officers may reflect a desire to remain on Active Duty rather than a rejection of the Reserves. Inservice recruiting approaches which present a positive image of men in Reserve nursing might influence those men who decide not to continue on Active Duty to consider the Reserves as a second job.

Married nurses among those in Group I were also strongly disinclined to join the Reserves and this is more likely to reflect concerns about incompatibilities between the family and Reserve service, since a much smaller proportion of these short tenure officers plan to remain on Active Duty. The concerns of these nurses might be allayed by the use of inservice recruiting resources to address issues of compatibility of Reserve service with family life.

Concerns with promotion were revealed in the profiles for nurses in all three tenure groups. Chance of promotion was consistently rated among the least satisfactory elements of military life and work. Salary range compression and the limited opportunity for advancement are frequently noted as dissatisfiers in civilian nursing settings. Policies which provided more billets for higher ranking nurses on Active Duty would be likely encourage long term Active Duty nurses to remain. The availability of adequate Reserve billets for upper paygrades would encourage those who have decided to leave Active service to consider the Reserves favorably.

## 2. Future Research

Any policy directed at Active Duty or Reserve Army nurses must be considered in terms of the market for nurses, since this is the context in which the Army Nurse Corps must operate in recruiting and retaining RNs. Losing sight of the role of the civilian sector (both in augmenting the overall supply of nurses and in offering nurses alternative employment opportunities) can produce a

misleading picture of the potential effects of various policies. Better knowledge of the overall market for nurses will benefit the Army in using its limited recruiting resources to locate and attract these badly needed personnel.

Prior service Army nurses are an essential part of the Reserve nursing labor pool. Their familiarity with military nursing environment and their extensive clinical experience make them very productive contributors to the Reserve mission. Studies should be undertaken to distinguish between prior service and nonprior service Reserve nurse accessions in terms of motivations and personal/demographic characteristics. A multichotomous logit approach could be used to address simultaneously the decisions to separate from Active service and to join the Reserves.

There is also a need for service-wide multivariate studies of retention behavior for Army Reserve nurses. Increased turnover leads to larger recruiting missions: the two issues are intertwined. A survey of this scope is currently being fielded and should provide information comparable to that which has been collected and analyzed for nurses in the civilian sector (Miller, 1987).

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## APPENDIX A

Table A-1. Major subject areas of the  
1985 DoD member survey

**Military Information**—Service, paygrade, military occupation, term of enlistment.

**Present and Past Locations**—Length of stay, expected stay, problems at present location and in moving to the location.

**Reenlistment and Career Intentions**—Probed respondent's future orientation by asking expected years of service, expected paygrade, probably behavior under different management options.

**Individual and Family Characteristics**—Focused on basic demographic facts such as age, sex, marital status, number and ages of dependents.

**Dependents**—Focused on basic demographic facts such as age, number, sex, physical and/or mental handicaps.

**Military Compensation, Benefits, and Programs**—Requested valuation of military medical services, commissary and exchange privileges, family programs, base pay, allowances for quarters and subsistence, perceived tax advantages.

**Civilian Labor Force Experience**—Focused on the household's civilian work experiences.

**Family Resources**—Used to determine level of household debts and non-wage or salary sources of income.

**Military Life**—Queried about attitudes to various aspects of military life, including compensation, interpersonal environment, and benefits.

# APPENDIX B

Table B-1. Factor loadings for principal components  
of member satisfaction

<u>Variable</u>	<u>Satisfaction with work</u>	<u>Satisfaction with benefits</u>	<u>Satisfaction with stability/opportunity</u>
Coworker	.77513		
Satjob	.71779		
Perfree	.66561		
Friends	.65044		
Wkcond	.58113		
Srvctry	.47854		
Medical		.74071	
Dental		.67533	
Retire		.58895	
VEAP		.56247	
Pay		.51717	
Comsry		.50948	
Train		.43504	
Moves			.71793
Stable			.69495
Familvev			.62518
Promote			.45072
Security			.33165

## Factor Transformation Matrix:

Factor 1	.65094	.62624	.42908
Factor 2	-.59942	.07718	.79671
Factor 3	.46581	-.77580	.42562

# APPENDIX C

Table C-1. Reserve intentions logit results, Active Duty Army nurses with 0-4 years of service, 1985

Actual Reserve intention: 62.5%

<u>Variable</u>	<u>Beta</u>	<u>Significance level</u>
Intercept	1.58	.04
Race	-0.09	.91
Gender	-.47	.72
Single with dependents	0.26	.79
Married no dependents	-2.73	.01
Married with dependents	-0.90	.34
Education	-0.18	.85
Nursing specialty	-0.13	.93
Advancement rate	-0.88	.22
Income	.02	.24
Debt	-.50	.38
Civilian opportunity	.29	.67
Satisfaction with work	.51	.05
Satisfaction with benefits	.22	.41
Satisfaction with stability/opportunity	.44	.13

n=88

% correctly classified: 78.4

Table C-2. Reserve intentions logit results, Active Duty  
Army nurses with 5-10 years of service, 1985

Actual Reserve intention: 40.8%

<u>Variable</u>	<u>Beta</u>	<u>Significance level</u>
Intercept	0.27	.80
Race	-0.73	.39
Gender	-2.52	.05
Single with dependents	-0.13	.90
Married no dependents	0.58	.52
Married with dependents	0.50	.50
Education	-0.09	.88
Nursing specialty	0.53	.59
Advancement rate	0.37	.48
Income	-0.02	.46
Debt	-1.18	.06
Civilian opportunities	-0.49	.51
Satisfaction with work	-0.13	.69
Satisfaction with benefits	-0.62	.08
Satisfaction with stability/opportunity	0.02	.93

n=76

% correctly classified: 68.4

Table C-3. Reserve intentions logit results,  
single Active Duty Army nurses, 1985

Actual Reserve intentions: 61.3

<u>Variable</u>	<u>Beta</u>	<u>Significance level</u>
Intercept	1.74	.02
Race	0.11	.84
Dependents	0.36	.41
Education	-1.05	.10
Civilian opportunity	0.53	.40
Advancement rate	-1.39	.001
Debt	-0.33	.50
Satisfaction with work	-0.07	.77
Satisfaction with benefits	0.22	.38
Satisfaction with stability/opportunity	0.01	.98

n=93

Cases correctly classified: 75.3%

Table C-4. Reserve intentions logit results,  
married Active Duty Army nurses, 1985

Actual Reserve intention: 46.3%

<u>Variable</u>	<u>Beta</u>	<u>Significance level</u>
Intercept	0.11	.86
Race	0.63	.30
Gender	-2.04	.03
Dependents	0.08	.70
Education	-0.32	.58
Civilian opportunity	-0.67	.31
Advancement rate	0.43	.22
Debt	-1.36	.01
Nursing specialty	-1.63	.12
Satisfaction with work	0.38	.16
Satisfaction with benefits	-0.59	.03
Satisfaction with stability/opportunity	-0.06	.78

n=95

Cases correctly classified: 73.7%

Table C-5. Reserve intentions logit results, Dual  
Army couples, Active Duty Army nurses, 1985

Actual Reserve intention: 50.0%

<u>Variable</u>	<u>Beta</u>	<u>Significance level</u>
Intercept	-2.21	.06
Dependents	0.72	.09
Advancement rate	0.71	.19
Debt	-0.95	.27
Satisfaction with work	1.08	.05
Satisfaction with benefits	-1.48	.01
Satisfaction with stability/opportunity	-0.23	.53

n=44

Individuals correctly classified; 79.5%



# APPENDIX D

Table D-1. Logit classification tables, Active  
Duty Army nurses, 1985, by tenure group

## 0-4 Years of Service

		<u>Predicted</u>		
		<u>Not join</u>	<u>Join</u>	<u>Total</u>
<u>Actual</u>	Not join	19	14	33
	Join	<u>5</u>	<u>50</u>	<u>55</u>
	Total	24	64	88

Correct: 78.4%

## 5-10 Years of Service

		<u>Predicted</u>		
		<u>Not join</u>	<u>Join</u>	<u>Total</u>
<u>Actual</u>	Not join	34	11	45
	Join	<u>13</u>	<u>18</u>	<u>31</u>
	Total	47	29	76

Correct: 68.4%

Table D-2. Logit classification tables, Active Duty  
Army nurses, 1985, by marital status group

Single Nurses

Predicted

<u>Actual</u>		<u>Not join</u>	<u>Join</u>	<u>Total</u>
	Not join	22	14	36
	Join	9	48	57
	Total	31	62	93

Correct: 75.3%

Married Nurses

Predicted

		<u>Not join</u>	<u>Join</u>	<u>Total</u>
<u>Actual</u>	Not join	37	14	51
	Join	11	33	44
	Total	48	49	95

Correct: 73.7%

Dual Military Couples

Predicted

		<u>Not join</u>	<u>Join</u>	<u>Total</u>
<u>Actual</u>	Not join	18	4	22
	Join	5	17	22
	Total	23	21	44

Correct: 79.5%

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